

**Draft Report on the Review of the  
Monthly Performance Reports and the  
Associated Incentive Plan Payment Reports  
Filed by Verizon New Jersey**

Presented to:

**Division of Telecommunication  
New Jersey Board of Public Utilities**

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# **I. Introduction**

## **A. Purpose of the Review**

Performance measures or metrics and incentive or performance assurance plans play vital roles in monitoring the competitive marketplace. Performance measures in areas such as ordering, provisioning, maintenance and repair, and billing provide a method to correlate an incumbent local exchange carrier’s (ILEC’s) performance between its wholesale and retail services. Interested stakeholders can use the results of performance measures to monitor whether there is a level playing field between the ILEC and competitive local exchange carriers (CLECs). The failure to meet certain standards of performance can result in incentives or remedies to encourage the ILEC to satisfy its commitments regarding the provision of services to CLECs. Therefore, it is extremely important that performance measures accurately and reliably reflect actual ILEC performance.

The New Jersey Board of Public Utilities (Board), Division of Telecommunications, issued an October 3, 2002, Request for Proposal (RFP) to secure the services of a consultant to conduct a review of Verizon New Jersey’s (VNJ) Monthly Performance Report and the associated Incentive Plan Report, Docket No. TX02090665. The requested services were for a comprehensive review of VNJ’s reporting integrity to assess whether the data generation, collection, analysis, retention, and reporting are sound, accurate, complete, and comply with relevant plans, guidelines, and Board orders. In its meeting on December 18, 2002, the Board selected The Liberty Consulting Group (Liberty) to conduct the review.

The objectives of Liberty’s review, as stated in the RFP and in Liberty’s proposal, were to determine whether:

1. Procedures for initially documenting and maintaining performance measurement documentation exist and conform to reasonable levels of quality and quality control.
2. Supporting documentation exists for performance measures, including calculations, exclusions, performance standards and disaggregation, and whether such documentation faithfully reflects Board order(s) and meets reasonable standards for clarity and completeness.
3. Data calculations comply with the documentation, including any provisions for exempting particular data from calculations and whether adequate classification parameters (*e.g.*, for disaggregation of results) are reflected.
4. Data collection (including appropriate sampling) is comprehensive, appropriate data ultimately is input to the performance measurement calculations, and data excluded from any result calculation is captured and stored with a designation of the reason for exclusion.

5. Detailed documentation exists for procedures to extract data from relevant data stores for VNJ or CLECs, whether operational procedures adhere to the documentation, and whether change control procedures are reasonable and fully implemented.
6. The performance measurement process starts with complete and accurate data.
7. Sufficient documentation exists describing the data storage, back-up, retrieval, CLEC access and proprietary information protection procedures for both detailed data and the results produced for performance measurement reporting, and whether operational procedures conform to such documentation.
8. Stored and reported performance measurement results are an accurate reflection of the documented methods.
9. The Board-ordered method comparing CLEC monthly results for individual CLECs or CLECs in aggregate is complete and accurately reflects Board order(s). VNJ correctly applies this method in drawing conclusions regarding conformance to designated performance standards.
10. The contents of results match the specified report details represented in VNJ’s Carrier-to-Carrier (*C2C*) reports.
11. Those measures VNJ may deem to be “parity by design” are in fact “parity by design.” Parity indicates non-discrimination measured by providing the same service as retail analogs, where they exist, or compliance with a benchmark standard where no retail analog is available.
12. VNJ accurately uses its results to report on the Incentive Plan (*IP*) using Board-ordered or approved policies and complete procedures, makes correct determinations of payments and severity levels, and uses correct arithmetic and statistical techniques.

Liberty’s review was to be sufficient such that, recognizing its results, CLECs and the Board and its Staff would know whether VNJ’s reported performance reflects actual performance. More specifically, these parties would know whether in reviewing and analyzing VNJ’s Carrier-to-Carrier report, they can have confidence in VNJ’s performance measurement processes and data quality. The review was to at least include documentation validation, end-to-end data tracking, report generation, data retention, and data extraction. The Board also contemplated interaction with affected CLECs, review of change management policies and practices, and the recalculation of performance measurement results.

## **B. Overview of Verizon-NJ Performance Measures and Incentive Plan**

The Board’s document “New Jersey Carrier-to-Carrier Guidelines Performance Standards and Reports” (C2C Guidelines or Guidelines) provides the basic definition of Verizon’s performance measures. In addition to the definition, it describes the method Verizon uses, indicates what records Verizon excludes from the calculations, and gives the performance standard that is applicable to each measure. The effective version of the C2C Guidelines during Liberty’s review is April 2002.<sup>1</sup>

Verizon organized its performance standards using the following eight domains:

- Pre-Ordering (PO)
- Ordering (OR)
- Provisioning (PR)
- Maintenance & Repair (MR)
- Network Performance (NP)
- Billing (BI)
- Operator Services and Databases (OD)
- General (GE).

Within each domain there are between three and nine performance measures. For example, PO-1 is a measure for the response time of the pre-ordering CLEC-Verizon interface. In total there are 49 performance measures. Within each performance measure, Verizon defines specific sub-metrics. For example, PO-1 contains eight, which are PO-1-01, PO-1-02, PO-1-03, PO-1-04, PO-1-05, PO-1-06, PO-1-07, and PO-1-09. PO-1-01, for example, measures the average response time for pre-ordering access to a customer service record. For actual performance reporting, many of these sub-metrics have additional granularity. Again for example, Verizon reports results for PO-1-01 in three ways: the average response time for a customer service record through the EDI, CORBA, and Web GUI interfaces. In its performance reports, Verizon distinguishes this level of detailed reporting using a four-digit code and by the text name of the measurement. For example, PO-1-01-6020 is “Average Response Time – Customer Service Record – EDI.” At this level of detail, there are over 750 individual results reported.

Verizon reports all or some subset of these results for CLECs in aggregate excluding Verizon’s own affiliated CLECs, for individual CLECs, and for Verizon’s affiliated CLECs. Verizon reports most results on a New Jersey statewide basis and for some provisioning and maintenance & repair metrics on a regional basis for five regions that cover the state of New Jersey. The five regions are Hudson/Bergen, Southern, Eastern Shore, Raritan, and Suburban.<sup>2</sup> The Guidelines

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<sup>1</sup> The Board adopted these guidelines in a November 9, 2001, order. On January 13, 2003, Verizon petitioned the Board to modify certain Carrier-to-Carrier performance measurements and standards. Verizon stated that the current C2C Guidelines contained several “unworkable metrics and standards.” Presently, this issue remains before the Board for its decision and Order.

<sup>2</sup> Response to Data Request #13. This response also noted that Verizon planned to petition the Board to change the regions to four in number, corresponding to the revised structure of its operations in New Jersey.

list for every measure an exclusion indicating that the CLEC aggregate results do not include Verizon affiliate results. In its discussion and analysis of the performance measures below, Liberty does not separately list this exclusion for every measure.

There are three basic types of performance standards: parity with retail, benchmark, and no standard. In cases where there is a comparable retail measurement, parity with retail is the preferred standard. In some cases, Verizon measures performance results against parity with retail plus some amount to account for inherent differences between wholesale and retail systems and operations. For example, the standard for PO-1-01 through PO-1-07 for the EDI interface is parity with retail plus not more than 4 seconds. The Guidelines state that the 4-second difference accounts for “variations in functionality and additional security requirements of interface.”<sup>3</sup> In cases where there is no reasonable retail comparable measurement, the Guidelines may specify a benchmark standard. Benchmarks take the form, for example, “85 percent within 20 seconds,” or “95 percent by the next business day at noon.” In still other cases, there are no specific standards. Verizon makes the results of these performance measures available for diagnostic and informational purposes.

To help ensure that Verizon provides quality wholesale services to CLECs, the Board adopted a financial Incentive Plan (IP).<sup>4</sup> The IP uses two methods, a “per unit” or a “per measure” fixed dollar amount, for the calculation of credits in cases where Verizon’s performance does not meet standards. The credits can increase depending on the degree or duration by which Verizon misses the standard. The Board requires that Verizon apply credits to the CLEC’s bill in the month following the sub-par performance.

Verizon indicated that the only documents agreed upon outside of Verizon that governed the calculation and reporting of wholesale performance results and incentive payments were the Guidelines, the IP, and the Board’s Orders that approved those two documents.<sup>5</sup>

Many parts of Verizon’s organization either contribute information related to, or are responsible for, wholesale performance reporting. With the exception of the organization under the Verizon-NJ state president and Verizon-NJ general counsel, who report through the Verizon general counsel, these organizational elements are in Verizon’s Domestic Telecom strategic business unit. These organizations contribute to or are responsible for performance reporting in all of Verizon’s states, not just New Jersey. The following diagram is a simplified organizational chart developed for this discussion.<sup>6</sup>

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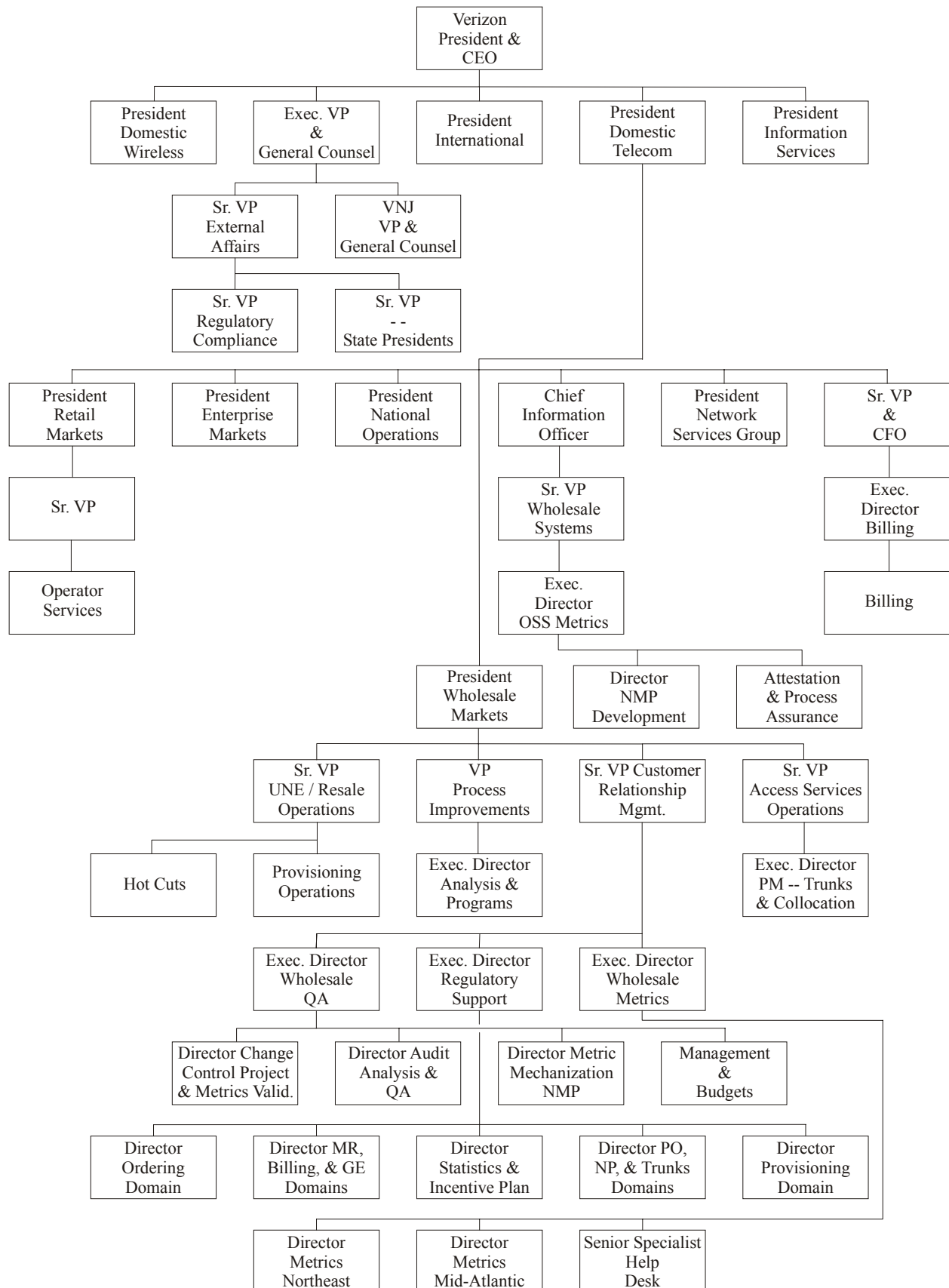
<sup>3</sup> C2C Guidelines, April 2002, p. 6.

<sup>4</sup> Verizon New Jersey Incentive Plan, October 2001, April 2002 (Revised).

<sup>5</sup> Response to Data Request #480.

<sup>6</sup> Interview #38, March 27, 2003, and responses to Data Requests #1, #84, #88, #107, #246, and #430.





As this diagram indicates, the Wholesale Markets group has most of the responsibilities for performance and incentive plan calculation and reporting. The senior vice president of customer relationship management has three executive director reports, Wholesale Quality Assurance, Regulatory Support, and Wholesale Metrics. The quality assurance group is responsible for change control, metrics validation, and internal audits of metric results. The regulatory support group contains the directors who are the owners of the various metric domains. The wholesale metric group is responsible for the actual production of the reports. Within that organization, there is a “Wholesale Metrics Production” team that has responsibility for producing both the New Jersey results report and the IP report. The personnel in this group are physically located in various parts of Verizon’s operating areas.<sup>7</sup>

Verizon has a wholesale quality assurance team (WQAT) reporting to the Director, Audit Analysis and Quality Assurance. This team tests whether performance metric results are accurate and in compliance with regulatory guidelines.<sup>8</sup> Verizon focuses the team’s efforts toward validating that Verizon has properly implemented changes controls. Liberty requested reports generated by the WQAT and learned that it had identified numerous issues concerning the metrics, ranging from properly displaying performance results to dealing with negative intervals in ordering metrics.<sup>9</sup>

Verizon’s Network Metrics Platform (NMP) group also performs a quality assurance function.<sup>10</sup> A group within NMP conducts report testing for all metrics regardless of the origination of the calculation. Verizon also uses this process to ensure that it has implemented change controls by maintaining query scripts separate from those used by the NMP software. Among the checks made by this group are reasonability checks, sub-metric value validation, and ASCII tag file validation. This NMP group also compares metric values from one month to the next so that it can highlight and investigate any unusual results.

## **C. CLEC Input**

The input from CLECs that conduct business in New Jersey was an important aspect of Liberty’s audit planning. Early in its review, Liberty received from the Board’s Staff a list of representatives at CLECs and made contact with several of them. For those CLECs that volunteered to participate, Liberty requested information regarding the CLECs’ (1) expectations for the audit, (2) areas of concern (*i.e.*, particular measures and products) in Verizon-NJ’s performance reporting, (3) perspective on confidential and proprietary information, (4) willingness to provide data (*e.g.*, local service requests, trouble reports) for use in data tracking, (5) use of Verizon-NJ’s performance and incentive plan results, and (6) views on permitting Liberty’s personnel to spend time in its work center(s) making observations and gathering data.

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<sup>7</sup> Response to Data Request #1.

<sup>8</sup> Response to Data Request #173.

<sup>9</sup> Responses to Data Requests #171, #172, #249, #263, and #264.

<sup>10</sup> Response to Data Request #678, and Interview #26, March 28, 2003.

Liberty asked over 20 CLECs to respond to a series of more than 20 questions, among which included:

- Which performance measures the CLECs believe that Verizon may not be reporting accurately.
- Which performance measures the CLECs think were most critical to them.
- Whether CLECs perform their own independent calculations of the performance measures that Verizon reports.
- Whether CLECs receive raw data files for Verizon and what they do with them.
- Whether CLECs are receiving performance measurements reports on a timely basis as required by the Board's orders.
- Whether the CLECs could provide sample data to Liberty for use during the audit.
- Whether CLECs believe the documentation related to performance measures that Verizon provides to them is adequate.
- Whether the CLECs believe that incentive plan payments by Verizon were complete, accurate, and timely.

Liberty also conducted telephone interviews with some CLEC representatives to clarify or expand on the responses received. Liberty received detailed responses from five CLECs.<sup>11</sup> Other CLECs responded to Liberty but did not provide answers to the questions. Liberty used the information received from CLECs in its audit planning. The following is a summary of some of the responses that Liberty received:

- Some CLECs listed specific performance measures, or families of measures, for which they had particular concerns. Mentioned most often were OR (ordering) and M&R (maintenance & repair) performance measures, and specifically OR-4 (timeliness of completion notifications) and MR-4 (trouble duration intervals). Other CLECs cautioned that the performance reported by all of the metrics are critical to CLEC operations, while reporting on particular products may be more important at particular times depending on the CLECs' current business emphasis.
- Some CLECs advised that Liberty's audit should emphasize those measures for which Verizon made significant incentive payments, or, through marginal improvement in performance, could avoid incentive payments. Others indicated that even those diagnostic performance measures without standards are important, as that performance may indicate areas that should be included in the IP.
- One CLEC advised that Liberty should audit measures that Verizon had modified by several change control notifications.
- An almost universal opinion of the CLECs was that Verizon may not be applying data exclusions correctly, or that Liberty should emphasize data exclusions in its audit.
- Another comment from the CLECs concerned the fact that they have no practical way of judging the accuracy of Verizon's retail results, which form the standard for many performance measures.

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<sup>11</sup> AT&T, Cavalier, Meg Radio, MetTel, and WorldCom.

- CLECs brought some very specific matters to Liberty’s attention. As examples, CLECs questioned the accuracy of the close-out coding used on trouble tickets and noted that the exclusion of orders designated as “projects” could affect accurate performance measure reporting.
- One CLEC requested that Liberty review Verizon’s business rules regarding result generation and compare them to the Board’s orders for compliance.
- Two CLECs stated that Verizon does not post or publish all of its business rules, therefore making it difficult to replicate Verizon’s measurements results.
- Two CLECs collect data on their orders issued to Verizon, allowing them to do independent calculations and compare results with those published by Verizon.
- One CLEC expressed a concern about the number of Metrics Change Control notices issued by Verizon, and whether Verizon adequately tested those changes before releasing them.
- CLECs commented that they had no input into the Metrics Change Control Process.
- One CLEC identified an issue involving Verizon missing a CLEC-specific measure and the CLEC not receiving a payment based on the argument that Verizon met the associated aggregate measure.
- In general, CLECs did not have significant problems with the Incentive Plan and its reports, except to the extent that inaccurate performance measures may affect the IP. However, Liberty received some comments about CLECs not receiving required interest payments, not having a credit applied to the next month’s bill, and not being able to specifically identify New Jersey credits from others.

Three CLECs agreed to work with Liberty during this audit. From one of the participating CLECs, Liberty received some trouble tickets. The CLEC provided UNE-P trouble tickets along with a number of fields that contained data related to the M&R metrics. Liberty matched the trouble tickets to the extent possible and compared the relevant and analogous fields to identify differences between the information recorded by Verizon with that recorded by the CLEC. For another participating CLEC, Liberty obtained a sample of approximately 100 purchase orders (PONS). Liberty used the CLEC data from these PONS and compared it with the data used by Verizon to calculate the performance metrics.

## **D. Liberty’s Review Methods**

Liberty organized its review through three teams. One team covered matters such as general reporting procedures, organization, change management, systems and data integrity, and the IP. The other two teams reviewed selected performance measures in detail. Liberty chose individual performance metrics for detailed review considering the following factors:

- Whether a CLEC had identified the measure as either particularly important or had expressed concerns about the accuracy of the reported results.
- Whether the measure was included in the IP, and whether the measure produced substantial incentive payments.

- Choose measures with a variety of products or interfaces.
- Choose measures using different data sources.
- Whether in Liberty's experience the measure may contain errors because of its nature or because of manual steps in the method used to calculate the results.

In addition to the input provided by CLECs at the beginning of its review, Liberty acquired most of the information needed for this review from Verizon through a series of over 900 data requests and from interviews and meetings with Verizon personnel. Scheduled interviews numbered over 60 and there were numerous other telephone conversations with Verizon's experts on a variety of topics.

## **E. Overall Conclusions**

Several of the objectives for this review that the Board's RFP specified and that are listed above focused on the adequacy of Verizon's documentation. In this regard, Liberty found that Verizon failed. There were very few cases in which Liberty found that Verizon's documentation provided a complete and accurate description of the methods and processes it uses to calculate and report performance results and incentive payments. Having sound documentation of the complex processes involved in metric reporting is important not only for the reliability of Verizon's internal practices but also so that interested stakeholders such as the Board and CLECs can understand and have confidence in Verizon's reports. Many of Liberty's findings and recommendations in this report relate to needed improvements in Verizon's documentation.

Despite Verizon's inadequate documentation, Liberty found that Verizon uses the data it records to produce reasonably accurate performance and IP results. Liberty found numerous cases in which Verizon's performance reporting contained errors or required change to be consistent with the Guidelines. However, most of these cases would not produce significantly altered results after correction.

Because of the time and effort required to gain an understanding of Verizon's performance measure processes and due to the limited amount of source data provided to Liberty by CLECs, Liberty's work in the area of assuring that Verizon accurately recorded source information for performance measure processing was restricted. Liberty recommends that Verizon's own internal quality assurance efforts focus on this important aspect of performance reporting. In addition, Liberty suggests that if the Board considers the conduct of any future auditing of Verizon's performance reporting, such audits focus on changes Verizon implemented and on the integrity of the data used to ultimately produce performance results.

Liberty found that Verizon did not treat the Guidelines as a document requiring verbatim compliance. In addition to those cases in which Liberty found that Verizon needed to change its methods to be consistent with the Guidelines, there were many instances where Verizon's methods were reasonable but not exactly consistent with the Guidelines. At least in some of these instances, Verizon was aware of the inconsistency but had not taken action to seek a correction. In January 2003, Verizon petitioned the Board to modify the Guidelines. However, this petition

focused on a few measures that Verizon characterized as flawed, and did not attempt to clarify or correct the Guidelines in other matters.

Verizon issued many metric change control notices during the last two years and during Liberty’s audit. The existence of and Verizon’s adherence to the change control process is commendable. However, Liberty suggests that Verizon improve this process to more fully explain the change and to inform recipients of the effect associated with the change. Verizon’s implementation of the Network Metrics Platform (NMP) was the cause of many of the notices. The NMP has significant architectural improvements over the older DataLoad process. The centralized metrics processing capability offers greater opportunity for efficient management, easier maintenance, and higher quality in the performance measurement calculation and reporting process. Nevertheless, the large number of change control notices reflects the marginal stability and reliability of Verizon’s performance reporting. On May 21, 2003, Verizon informed Liberty that, in July 2003, Verizon would replace the New Jersey service order system, MISOS, with a new system, SOPDOE. MISOS is an important source system for many of the performance measures; its replacement may create an additional period of change and instability.

Liberty found that Verizon appears to be calculating incentive payments correctly given Verizon’s metric results. However, Verizon is not in compliance with the Board’s ordered IP in that Verizon does not provide the calculations and details necessary to prove that the payment amounts are correct. In addition, Verizon could not produce information that would prove conclusively that it correctly credits CLEC bills for incentive payments. Moreover, Verizon has not audited this important aspect of wholesale performance assurance.

Liberty classified the findings resulting from its review consistent with the following table.

<b>Classification</b>	<b>Description</b>
1	<ul style="list-style-type: none"><li>• Correction of this item could cause a change in Verizon’s reported results or IP payments.</li><li>• Verizon’s practice or method is clearly inconsistent with the Guidelines.</li></ul>
2	<ul style="list-style-type: none"><li>• Correction of this item may not change Verizon’s reported results, or the magnitude of the change is unknown.</li><li>• Verizon’s methods may be in error or inconsistent with the Guidelines.</li></ul>
3	<ul style="list-style-type: none"><li>• Verizon should develop or improve its procedures or documentation.</li><li>• Change in this area would lead to improvement in the reliability of reported results.</li></ul>
4	<ul style="list-style-type: none"><li>• The Guidelines should be revised to be consistent with Verizon’s current methods, which are either acceptable or Verizon said cannot be changed.</li><li>• This finding is for informational purposes and does not have a specific recommendation.</li></ul>

The following table contains Liberty’s audit findings along with the classification and the report page number for each.

<b>No.</b>	<b>Class.</b>	<b>Finding</b>	<b>Page</b>
1	3	Verizon’s Metric Business Rules for New Jersey do not accurately reflect performance measure processing.	19
2	2	Verizon does not comply with the IP and the Board’s order regarding the detail and calculations it should provide in the monthly IP reports.	29
3	4	Verizon should request a change of the language in the IP to be consistent with its method for using the current base month with the IP chronic multiplier.	29
4	2	Verizon could not provide the information required to verify correct IP payments. Moreover, Verizon could not prove that it had correctly applied IP payments to CLEC bills.	29
5	3	Verizon does not have a well documented process for reprocessing archived data.	41
6	3	Verizon does not uniformly apply the CPS/CPI-810 security policy throughout the organization.	41
7	3	Verizon’s metric change control process needs improvement.	46
8	3	The large number and the type of change control notifications that Verizon has issued recently indicate that its performance reporting systems and methods are not stable and reliable.	47
9	4	Verizon is not adhering to the definition of response time in the Guidelines for PO-1.	52
10	3	Verizon has essentially no documented policies, procedures, or guidelines that govern how the PO-1 metric results are to be developed and calculated.	52
11	1	Verizon is not following the <i>Methodology</i> section of the Guidelines for PO-2.	56
12	2	Verizon is not using EnView to measure availability of one of the CORBA complexes for PO-2.	57
13	3	Verizon has no documented policies, procedures or guidelines that govern how the PO-2 metric results are to be developed and calculated.	57
14	4	Readers of Verizon-NJ’s metric performance reports should be aware of the manner in which Verizon is making its exclusions for PO-2.	58
15	4	There are inconsistencies between Verizon’s methods for calculating PO-3 and the Guidelines.	61
16	3	The documentation for PO-3 is inadequate.	62
17	1	Verizon has not justified adequately its use of two different data sources for its PO-3-03 and PO-3-04 metric results calculations.	62
18	2	Verizon is making additional PO-4 exclusions beyond the one listed in the Guidelines.	66
19	4	The definition of the denominator of PO-5 gives Verizon considerable flexibility over the outages it includes in the measure.	68
20	4	Verizon is making an exclusion to PO-5 although the Guidelines do not list any.	69
21	2	Verizon’s process for determining when an interface outage has begun is too subjective for PO-5.	69
22	1	Verizon does not use the actual time it sends out notices when calculating intervals for PO-5.	70
23	3	Verizon has no documented policies, procedures, or guidelines that govern how the PO-5 metric results are to be developed and calculated.	71
24	3	Verizon has essentially no documented policies, procedures or guidelines that govern how the PO-6 metric results are to be developed and calculated.	73
25	4	Verizon is making an exclusion to PO-6 that the Guidelines do not list.	73
26	1	Verizon has an unusual interpretation of the <i>Definition</i> section of the Guidelines for PO-7.	77
27	4	The Guidelines for PO-7 have a minor omission.	78
28	3	Verizon has only one documented policy, procedure, or guideline that governs one aspect of how the PO-7 metric results are to be developed and calculated, and this document is flawed and incomplete.	78

<b>No.</b>	<b>Class.</b>	<b>Finding</b>	<b>Page</b>
29	4	Verizon is not following exactly the <i>Definition</i> section of the Guidelines for PO-8.	81
30	3	Verizon has essentially no documented policies, procedures or guidelines that govern how the PO-8 metric results are to be developed and calculated.	81
31	3	Verizon’s documentation for the OR metrics is not clear, accurate, and complete.	91
32	2	Verizon does not distinguish between line sharing and line splitting products in its OR results.	91
33	2	Verizon should report OR-1-01 results for resale and UNE 2-wire digital, 2-wire xDSL, and specials orders that require loop qualification and achieve flow through in order to be consistent with the Guidelines.	92
34	4	The descriptions in the Guidelines for several OR-1 and OR-2 metrics are not correct with respect to products ordered with an ASR.	92
35	1	Verizon is misrepresenting its results in the OR-1 and OR-2 metrics by using inflated line count quantities in some instances.	92
36	2	In at least a limited number of cases, Verizon uses an incorrect flow-through indicator when calculating OR-2 metric results.	92
37	4	Verizon’s method for treating resent ASR confirmations in OR-1 is different from the method it uses for resent LSR confirmations, and does not conform to the Guidelines.	109
38	4	Verizon’s exclusion of special project orders in OR-1 is reasonable, but not consistent with the Guidelines.	110
39	2	There is an error in Verizon’s algorithm for the resale DS3 product results in OR-1-06.	110
40	4	Verizon’s exclusion of trunk service orders with negative FOC intervals is reasonable, but not documented in the Guidelines.	110
41	2	Verizon’s method for selecting orders for the reporting month for the OR-1-11, OR-1-12, and OR-1-13 measures is not consistent with the Guidelines.	110
42	4	Verizon’s treatment of trunk group service requests (TGSRs) that it receives after 2 p.m. in OR-1-19 is reasonable, but not documented in the Guidelines.	111
43	2	Verizon’s treatment of LSR order and ASR orders for the OR-2 measure is inconsistent and not in conformance with the Guidelines.	123
44	4	Verizon’s exclusion of special project orders in OR-2 is reasonable, but not consistent with the Guidelines.	123
45	2	Verizon’s method for selecting orders included in the reporting month for OR-2-11 and OR-2-12 is not consistent with the Guidelines.	123
46	2	Verizon does not calculate results for OR-3 correctly and is not in conformance with the Guidelines.	125
47	4	Verizon’s current process for measuring hot cut orders for the OR-4 metrics is reasonable but inconsistent with the language in the Guidelines.	145
48	2	Verizon’s method for calculating the OR-4-01 through OR-4-05 and OR-4-09 through OR-4-11 sub-metrics contains exclusions that the Guidelines do not specify.	145
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50	4	Verizon’s methods for calculating OR-4-06 through OR-4-08 do not conform to the Guidelines.	146
51	4	The Guidelines do not specify how Verizon should define the reporting month for the OR-5 metrics.	152
52	1	Verizon’s current sampling process for OR-6-01 and OR-6-02 does not guarantee that the objective sample size of 400 orders per product per month as required under the Guidelines will be achieved.	159
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55	2	Verizon’s method of counting field values rather than fields for the OR-6-02 metric is in conflict with the Guidelines.	160



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56	4	Verizon’s methods for calculating OR-7 are reasonable but not consistent with the Guidelines.	163
57	4	Verizon’s exclusion of test CLEC orders is reasonable but not consistent with the Guidelines for OR-8.	166
58	4	Verizon should seek a clarification to the Guidelines regarding its method for including only those acknowledgments associated with rejected or confirmed orders in the OR-8 and OR-9 measures.	166
59	4	Verizon’s methods for calculating OR-9 are reasonable but not consistent with the Guidelines.	169
60	3	Verizon’s documentation for the PR measures is not formalized, accurate, and complete.	186
61	4	Verizon makes general exclusions to the PR metrics that are reasonable but not reflected in the Guidelines.	187
62	2	Verizon does not implement the exclusion of negative intervals for PR-1 through PR-3 correctly for certain products.	187
63	1	Verizon has a significant number of service orders with a missing original appointment code for unexplained reasons, which may cause Verizon to treat them incorrectly in the calculation of PR metrics.	187
64	2	Verizon incorrectly calculates the data field that it uses in PR-1 and PR-2 to exclude ASR-related service orders where the customer did not select the standard offered interval.	187
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66	2	Verizon’s definitions for the UNE 2-wire xDSL Line Sharing for PR-1 through PR-3, and for the UNE POTS Loop product group for PR-1 and PR-2 do not conform to the Guidelines.	209
67	4	Verizon includes one-day-or-less 2-wire digital and xDSL features-only orders in its retail and resale POTS product group results for PR-1 through PR-3, which is reasonable, but not specified in the Guidelines.	210
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71	2	Verizon’s metric algorithms for PR-1, PR-2, and PR-3 contain errors.	211
72	4	Verizon should seek clarifications to the Guidelines for certain conventions it had adopted for calculating the PR-1 to PR-3 metrics which, while reasonable, are not specified in the Guidelines.	211
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95	3	Verizon has essentially no documented policies, procedures or guidelines that govern how the NP-1 metric results are to be developed and calculated.	284
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## **II. Reporting, Incentive Plan, and Systems Evaluation**

### **A. Performance Reporting**

#### **1. Introduction and Background**

##### **a. C2C Monthly Performance Reports**

VNJ provides its wholesale performance reports to assist CLECs and the Board in monitoring the quality of Verizon’s wholesale business service. The most comprehensive report is the “New Jersey Carrier-to-Carrier Monthly Performance Standards Reports” (C2C Monthly Performance Reports), which provides the results for a month for all performance measures. There are three types of these monthly reports: the results for all CLECs on an aggregate basis, the specific results for Verizon’s affiliated CLECs (which results are excluded from the CLEC-aggregate report), and reports for individual CLECs.

This report provides the specific metric number (*e.g.*, PR-1-04-2100) and short definition, the standard if one exists, and the results for that month. Depending on the specific metric involved, the results may include the Verizon retail and CLEC performance, the number of observations, differences, standard deviation, and z-score. The Board requires Verizon to issue this report on the twenty-fifth day of each month or the following business day if the due date is on a weekend.<sup>12</sup>

##### **b. Incentive Plan Payments Reports**

As a result of the IP adopted in New Jersey (see section B below), the Board requires VNJ to submit a monthly Incentive Plan Payments Report within ten days following the issuance of the C2C Monthly Performance Report.<sup>13</sup> This report indicates the amount VNJ credited CLECs for cases in which Verizon did not meet a standard by individual CLEC and by metric. The Board requires that VNJ apply credits to the CLEC’s bill in the month following the sub-standard performance.<sup>14</sup>

The NMP system generates both the C2C Monthly Performance Reports and the Incentive Plan Payments Reports. Refer to section II.C below.

##### **c. Metric Business Rules**

Verizon issues and publishes on its web site ([http://128.11.40.241/perf\\_meas\\_ug/library.htm](http://128.11.40.241/perf_meas_ug/library.htm)) NJ Metric Business Rules.<sup>15</sup> There is one document for each of the eight metric domains that make up these rules. In general, these rules repeat the information in the Guidelines and provide

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<sup>12</sup> Verizon New Jersey Incentive Plan for the State of New Jersey, Page 10.

<sup>13</sup> Board Order Docket Nos: Tx95120631 and TX98010010 Dated 01/10/02 page 23.

<sup>14</sup> Verizon New Jersey Incentive Plan for the State of New Jersey, Page 2.

<sup>15</sup> Response to Data Request #17.

additional detail that Verizon intends to assist a CLEC or the Board in checking or replicating performance results. For some measures, this detail includes the queries that Verizon uses to sort data and calculate the numerators and denominators for the performance measures.

## **2. Analysis and Evaluation**

### **a. C2C Monthly Performance Reports**

Verizon's monthly performance report for individual CLECs or CLEC aggregate performance is an Excel spreadsheet file containing several worksheets that provide results in various areas such as ordering, provisioning, and maintenance. These worksheets provide the metric number and short descriptive name, the standard if one exists, and the following data fields: Verizon performance result for the month, CLEC performance result for the month, number of observations for Verizon and CLEC, the standard deviation, sampling error, and z-score.

None of the CLECs that Liberty contacted during this review expressed any particular problems or concerns with the timeliness or format of Verizon's monthly performance reports. Moreover, none of the specific objectives that the Board specified for Liberty's review related to the format and content of Verizon's monthly report. Nevertheless, Liberty believes it is appropriate to at least comment on these reports. There is significant room for improvement in Verizon's monthly report, and Liberty notes that:

- The size of the print in the reports is so small that it may be difficult for many to read.
- Verizon does not provide the numerator and denominator that make up the performance result.
- There is no historical information provided.
- The data format does not allow a CLEC or the Board to mechanically place it into applications that permit data analysis.

At least one other ILEC provides results that show numerators, denominators, results, statistical information, twelve months of data, and a graphical display of results against the standard. The tradeoff is that this ILEC's results reports are in the range of 300 pages long, while Verizon's consist of about 20 worksheets within an Excel file.

When Verizon finds errors in the performance reports that it issued, it distributes revised results. For example, during Liberty's review, Verizon issued corrected results for the months of June 2002 (issued in January 2003) and August 2002 (issued in March 2003).

### **b. Incentive Plan Payments Report**

Liberty reviewed Verizon's procedures for assembling and issuing the Incentive Plan Payments Report and found that they were adequate. During the span of this audit, Liberty received all IP Reports on time. Liberty did not receive information or data from CLECs indicating problems with this report.

**c. Metric Business Rules**

Early in Liberty’s audit, Verizon and Liberty had a conference call to review the structure and content of the Metric Business Rules.<sup>16</sup> In this call Verizon informed Liberty that the Business Rules to which Verizon referred Liberty and which are published on the Board’s web site were out of date. Verizon also provided an updated version of the rules. Subsequently, Liberty learned that Verizon re-issues the Business Rules to reflect any metric changes implemented and to make any corrections it found to be required. Verizon indicated that it had revised the Business Rules as follows:<sup>17</sup>

June 2002 Data Month – August 15, 2002  
July 2002 Data Month – September 30, 2002  
August 2002 Data Month – October 15, 2002  
September 2002 Data Month – November 19, 2002  
October 2002 Data Month – December 13, 2002  
November 2002 Data Month – January 31, 2003  
December 2002 Data Month – March 17, 2003.

As its review probed into the details of Verizon’s calculation of performance measures, Liberty discovered errors in the Business Rules.<sup>18</sup> Verizon indicated that these errors were the result of the manual process it employed to copy portions of the computer code used to process data and paste that code into the Business Rules documents. Liberty also concluded that the nature of at least some of the errors had to be in the documentation rather than the actual computer code because Verizon reported reasonably possible results.

Verizon acknowledged some problems with the Business Rules and described a process by which it intended that these errors would not occur in the future.<sup>19</sup> Verizon indicated that it had performed a comprehensive review of the Business Rules and had discovered issues that affected 99 queries out of a total of over 2,000 queries used in the calculation of performance results. A query is a set of data sorting and arithmetic steps used to determine either the numerator or denominator of a performance measure. Verizon indicated that these issues had been resolved and that it would complete the automated process of pulling a plain-language version of the computer code directly into the Business Rules by April 18, 2003, for the February 2003 data month. As of May 30, 2003, Liberty had not received a complete set of the business rules developed using the new method.

Verizon issues performance and IP reports on time and in a form generally consistent with the Board’s requirements. Liberty received its copies of the C2C and IP reports in a timely fashion. None of the CLECs Liberty contacted expressed concern about the timeliness of Verizon’s reports. It does appear that there is about a six-month lag for corrected reports to come from

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<sup>16</sup> Conducted January 7, 2003.

<sup>17</sup> Response to Data Request #408.

<sup>18</sup> Interview #22 regarding OR measures, March 7, March 14, and March 20, 2003.

<sup>19</sup> Interview #45, April 1, 2003.

Verizon. In as much as these corrected reports are necessary and are accepted on face value to be more reliable than the originals, Verizon should reduce the amount of time it takes to produce these corrected reports are provided.

Given Liberty’s charter and the feedback received from CLECs, Liberty does not provide a recommendation with regard to the form of Verizon’s performance reporting. However, in Liberty’s opinion, there is significant room for improvement.

### **3. Findings and Recommendations**

#### **Verizon’s Metric Business Rules for New Jersey do not accurately reflect performance measure processing.**

Verizon’s Metric Business Rules have not accurately reflected the way that Verizon actually calculates performance metrics. Verizon indicated that it developed a new method for accurately reflecting its performance measure calculations in business rules. However, Liberty did not evaluate Verizon’s new method because its results were not available in time for this audit report. Verizon should demonstrate to the Board that it can and has produced accurate business rules.

## **B. Incentive Plan (IP)**

### **1. General Background and Process Definition<sup>20</sup>**

The Board intends the IP to help ensure that Verizon provides quality wholesale service to CLECs by providing for financial remedies when Verizon does not meet certain performance standards. These remedies come to CLECs in the form of Verizon credits, which can vary depending on the degree or repetition that Verizon does not meet the standard. The Board requires that Verizon-NJ apply credits to the CLECs’ bills in the month following the sub-standard performance.

#### **a. Requirements of the IP<sup>21</sup>**

The IP defines the performance measures included in the plan as either “per-unit” or “per-measure.” In the first type, the number of affected units is determined by multiplying the number of measured units for the CLEC in that month by the difference between Verizon’s actual performance for the CLEC and the applicable standard. The IP then directs Verizon to calculate the credits by multiplying the number of affected units by a fixed dollar amount per unit that depends on the magnitude of the difference between the standard and actual performance.

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<sup>20</sup> Response to Data Request #93, and the Verizon New Jersey Incentive Plan, October 2001, April 2002 (Revised), with Appendices A and B.

<sup>21</sup> Response to Data Request #93.

The IP assigns a flat credit amount to each per-measure performance metric, with the amount of the credit determined by the magnitude that Verizon missed the standard. Verizon distributes penalties resulting from per-measure calculations to all CLECs with reported activity for that particular measure. The amount allocated to each affected CLEC is dependent on the ratio of the individual CLEC’s access lines to the total number of all access lines for all affected CLECs.

The following table shows the number of per-unit and per-measure type credits by performance measure domain.<sup>22</sup>

<b>Domain</b>	<b>“Per Unit”</b>	<b>“Per Measure”</b>
Pre-Ordering	2	31
Ordering	71	6
Provisioning	68	0
Maintenance & Repair	66	12
Network Performance	3	4
Billing	0	10
Operator Services and Databases	1	2
General	2	0
<b>Total</b>	<b>213</b>	<b>65</b>

The total amount of the incentive credit is a function of the severity of the miss (“Minor,” “Moderate,” or “Major”), the number of consecutive months for which Verizon has failed to meet the standard, the relative volume of CLEC activity (in the case of per-measure metrics), and the volume of “affected units” (in the case of per-unit measures). The following table summarizes the manner in which the IP categorizes missed standards by severity.<sup>23</sup>

<b>Type\Severity</b>	<b>Minor</b>	<b>Moderate</b>	<b>Major</b>
\$/Unit	\$ 35	\$ 75	\$ 150
\$/Measure	\$ 15,000	\$ 30,000	\$ 75, 000

The amount of the incentive increases for each consecutive month in which Verizon fails to meet the standard. The “chronic multiplier factor” reflects this aspect of payment determination. For example, if Verizon misses the standard for two consecutive months, the incentive payment is twice the amount that Verizon would have been required to credit if it had missed the standard for only one month. Also, if Verizon misses a standard for a particular measure for any three months during a six-month period, the incentive is three times the single-month amount. The following table illustrates the various chronic multiplier factors associated with misses of a particular measure.<sup>24</sup> A “√” indicates that Verizon met the standard, while a “×” indicates a miss.

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<sup>22</sup> Response to Data Request #36.

<sup>23</sup> Response to Data Request #93.

<sup>24</sup> Response to Data Request #517.



Current Month minus 5	Current Month minus 4	Current Month minus 3	Current Month minus 2	Current Month minus 1	Current Month	Current Month Multiplier
√	√	√	√	√	×	Applicable=X
√	√	√	√	×	×	Applicable=2X
√	√	√	×	×	√	Not Applicable
√	√	×	×	√	×	Applicable=3X
√	×	√	×	√	×	Applicable=3X
×	√	×	√	×	×	Applicable=3X
√	×	√	×	×	×	Applicable=3X
×	√	×	×	×	×	Applicable=5X
√	×	×	×	×	√	Not Applicable
×	×	×	×	√	×	Applicable=3X

There is no maximum annual incentive that Verizon must pay. However, if the IP payments exceed \$25 million in a given month, Verizon may request the Board to commence proceedings to show why Verizon should not make payments in excess of \$25 million. Pending the outcome of the hearings, Verizon will hold in an interest bearing escrow account the portion of the credits in excess of the \$25 million.

**b. Metrics in the IP**

As shown in the table below, the IP includes 278 of the 759 individual reporting measurements that are part of the Guidelines. Eighty percent of the measurements included in the IP are concentrated in the Ordering, Provisioning, and Maintenance & Repair domains.

Domain	Measurements	
	IP	Total
Pre-Ordering	33	50
Ordering	77	236
Provisioning	68	273
Maintenance & Repair	78	149
Network Performance	7	24
Billing	10	18
Operator Services and Databases	3	7
General	2	3
<b>Totals</b>	<b>278</b>	<b>759</b>

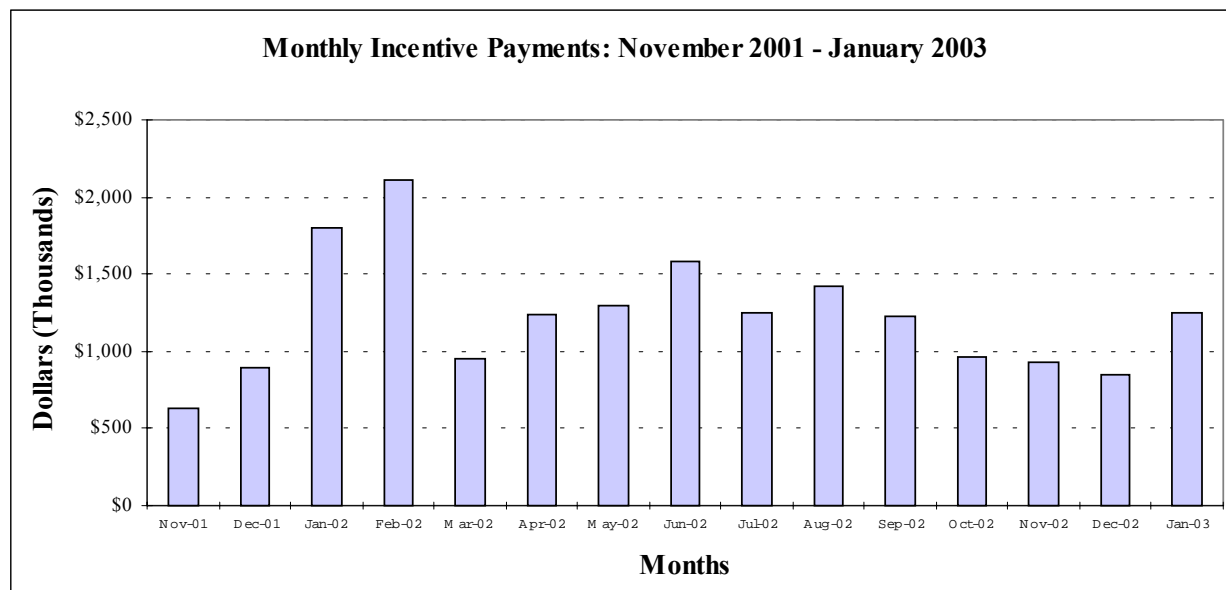
The Guidelines establish the standards, either parity or benchmark, that form the basis for the IP. Parity standards compare the CLEC results with Verizon retail results, while benchmarks are

absolute numeric standards. The table below shows the type of standard by performance measure domain included in the IP. Most of the parity standards are in the provisioning and maintenance & repair measurements.

Standards Included in the IP		
Domain	Parity	Benchmark
Pre-Ordering	0	33
Ordering	2	75
Provisioning	63	5
Maintenance & Repair	66	12
Network Performance	2	5
Billing	5	5
Operator Services and Databases	1	2
General	0	2
<b>Total</b>	<b>139</b>	<b>173</b>

**c. Incentive Payments**

Liberty reviewed Verizon’s payments under the IP for the period November 2001 through January 2003. The payments over this 15-month period averaged about \$1.2 million per month. The payments at the beginning of the period, November 2001, were the lowest of the 15-month period (\$634,210). The payments increased to the largest monthly payment (\$2,114,654) in February 2002.<sup>25</sup>

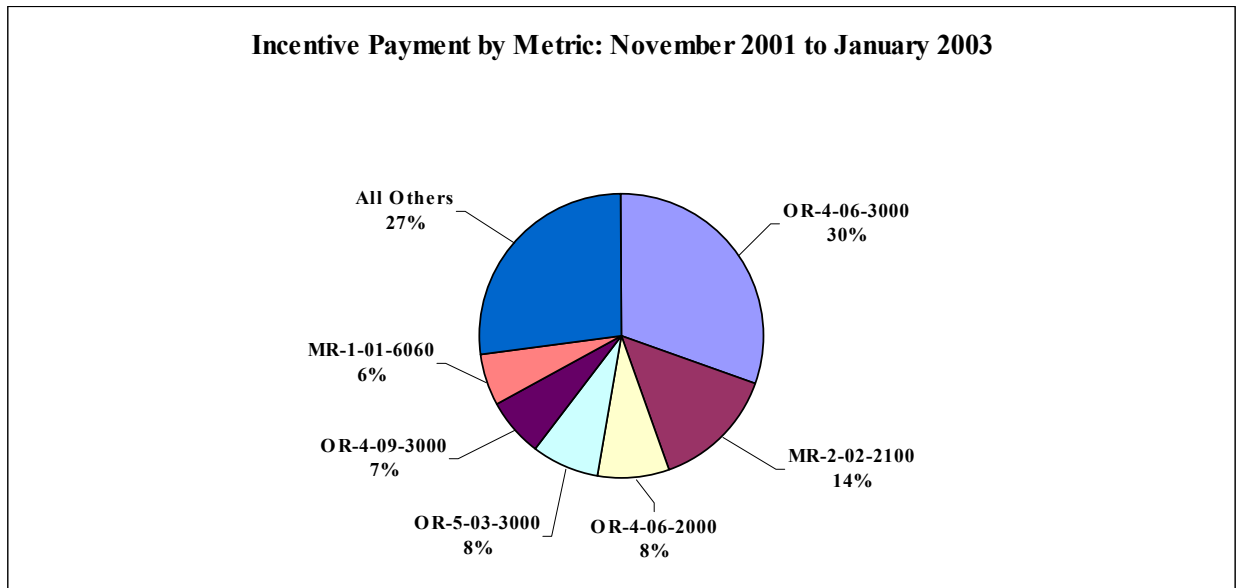


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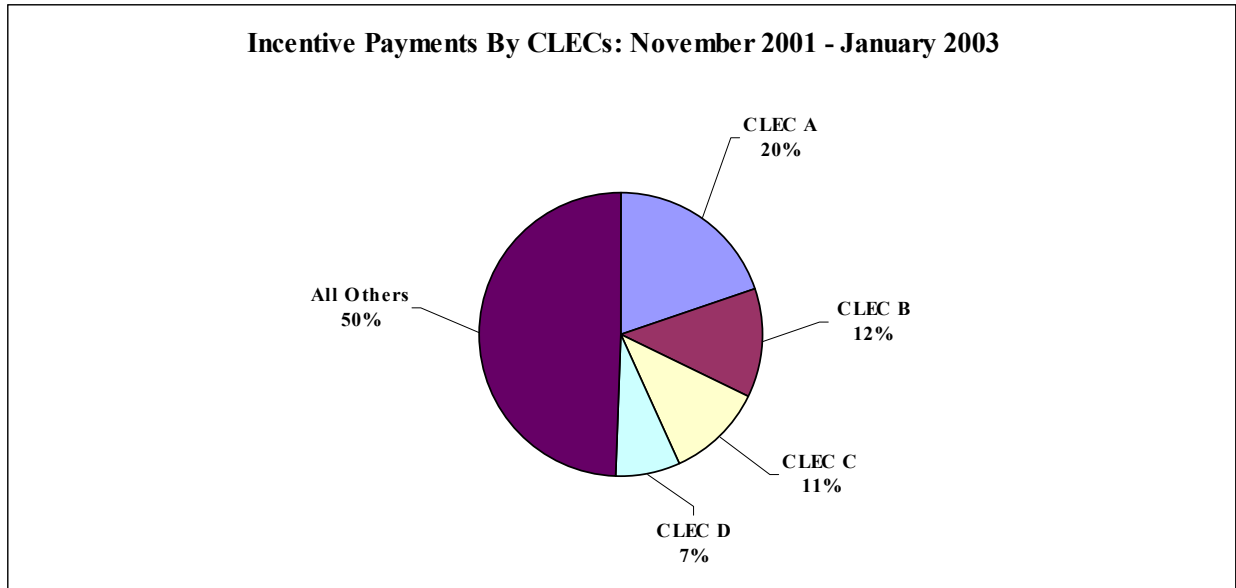
<sup>25</sup> Incentive payment reports received from Verizon and the Board Staff.

Maintenance & Repair and Ordering performance measures accounted for most of Verizon’s payments during this same 15-month period. More specifically, the following six metrics accounted for 73 percent of all incentive payments.

- OR-4-06-3000
- MR-2-02-2100
- OR-4-06-2000
- OR-5-03-3000
- OR-4-09-3000
- MR-1-01-6060.



Four CLECs accounted for over half of total payment dollars and the top ten recipients of Verizon’s credits accounted for 71 percent of the total.



## 2. Analysis and Evaluation

### a. Process and Organization

Liberty reviewed the processes and procedures Verizon uses to implement the IP, and evaluated their completeness, timeliness, accuracy, and reliability. More specifically, through the review of documents and interviews of Verizon personnel, Liberty assessed:

- Past IP reports
- Verizon’s organization and procedures for determining IP payments and issuing IP reports
- Verizon’s adherence to its procedures.

Liberty found that Verizon’s monthly IP reports were consistent in structure and content. However, the values and letters are small in the reports and are difficult to read. The reports only contain data from the current month.

Reporting to the Executive Director, Wholesale Metrics, the Network Metrics Report Generation team has overall responsibility for producing the IP reports.<sup>26</sup> Verizon accepts CLEC inquiries about the IP through its Help Desk, which reports to the same executive director.

In November 2001,<sup>27</sup> Verizon began transitioning the generation of IP reports from a system called DataLoad to NMP.<sup>28</sup> While Verizon’s documentation for DataLoad was very general and cursory, the NMP documentation is comprehensive, and provides step-by-step instructions with examples related to the IP reports.

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<sup>26</sup> Response to Data Request #85.

<sup>27</sup> Response to Data Request #19.

<sup>28</sup> Response to Data Request #93.

Recently, Verizon implemented the NMP Testing Process Document for Monthly Reports.<sup>29</sup> Within this process, Verizon added another testing step known as the Pseudo Testing Report (PTR). PTR is a four-step process that creates a pseudo report generated in a sample spreadsheet that is compared to the applicable NMP-generated IP report. Should Verizon discover differences between the two, team members work to determine the cause of the discrepancy.

### **b. Reporting**

Verizon’s IP reports are consistent with the plan except for two matters dealing with (1) the month used as a base for the chronic multiplier and (2) the inclusion of calculations in Verizon’s reports.

The exact words in the IP require that Verizon use the first month in which it misses a performance standard as the base for the multiplier in cases where Verizon misses the standard in consecutive months.<sup>30</sup> Verizon actually uses the amount due for the most recent month as the amount it applies to the chronic multiplier. Nevertheless, Verizon’s method is appropriate from an incentive standpoint and consistent with the intentions of the Board. Verizon should request a change in the wording of the IP to make its current method and the IP consistent.

The IP requires that in cases where Verizon misses a performance standard, Verizon shall provide the affected CLEC(s) a schedule detailing the calculation of the credit(s).<sup>31</sup> In addition, the Board’s order required Verizon “to submit detailed monthly reports and calculations utilized to determine the level of incentives for each affected CLEC separately and on an aggregated basis for the entire CLEC community within ten (10) business days from the filing of each month’s performance report.”<sup>32</sup> Despite these clear requirements, Verizon’s IP reports provide only values and no calculations.

Verizon said that all “necessary calculations specified in the Carrier-to-Carrier Guidelines and the Incentive Plan”<sup>33</sup> are contained in the reports. However, Verizon does not provide the calculations, does not provide the numerators and denominators used to determine the performance result, and does not provide all factors necessary to verify that the result is correct, such as the number of CLEC and total access lines. Liberty concluded that Verizon’s current incentive reports do not comply with the IP and with the Board’s order.

### **c. Recalculations**

Liberty attempted to recalculate Verizon’s incentive payments for October, November, and December 2002. As a first step, Liberty compared Verizon’s documentation<sup>34</sup> with the IP.

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<sup>29</sup> Response to Data Request #379.

<sup>30</sup> NJ Incentive Plan, April 2002, page 5.

<sup>31</sup> NJ Incentive Plan, April 2002, page 3.

<sup>32</sup> BPU Docket Nos. TX95120631 and TX98010010 of the Agenda date 01/12/02, p. 23.

<sup>33</sup> Response to Data Request #92.

<sup>34</sup> Responses to Data Requests #379 and #407.

Liberty also evaluated Verizon’s parity service decisions to ensure they were being determined as defined in the IP. The determination of a parity condition for each performance metric entails a fairly complex algorithm<sup>35</sup> and set of statistical calculations based on a number of metric and incentive payment characteristics.<sup>36</sup> Finally, Liberty determined whether Verizon correctly calculated the incentive payment.

First, Liberty found that the documents submitted by Verizon and used to determine IP payments were consistent with the IP itself.

Liberty then set up a testing process for the statistics Verizon uses to make determinations as to whether it is providing parity service. This entailed the following steps:

- 1: Identify the different types of incentive calculation algorithms and data types for testing. Liberty assumed that each incentive calculation algorithm goes through the same steps (computer code) for metrics of the same algorithm type. Liberty lists these cases in the table below.
- 2: Verify or recalculate the statistical methods used to determine if there was a made or missed metric that will result in an incentive payment. In order to perform this test, Liberty requested CLEC and Verizon service information for both missed and made measures, but Verizon did not provide it.<sup>37</sup>

These testing cases were determined by taking every combination of the following metric characteristics:

- Parity or benchmark performance standard (P/B)
- Unit or metric based incentive payment (U/M)
- Measurement standard (mean, rate, proportion)
- Data source type (*e.g.*, percent measures, OSS Response Time, OSS Availability, Report Rate, Trunk Blockage, Notification of outage, and Delay days for change management notices), which resulted in 17 unique testing cases.

The column “Metric Exists” in the table below indicates whether an actual performance metric exists that matches each combination of characteristics. If there are no metrics with a certain set of characteristics, then it is impossible to test that combination. These combinations are labeled with a “NO” in the Example column and are included for completeness sake.

**Table: Testing Cases**

<b>CASE NUMBER</b>	<b>P/B</b>	<b>U/M</b>	<b>STANDARD</b>	<b>Metric EXISTS</b>	<b>Example EXISTS</b>
1	B	M	DURATION	YES	YES
1A			OSS RESPONSE TIME	YES	YES
2	B	M	PERCENTAGE	YES	YES
2A			OSS RESPONSE TIME	YES	NO
2B			CHANGE NOTICE	YES	NO
3	B	M	NUMBER	YES	NO

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<sup>35</sup> Response to Data Request #279.

<sup>36</sup> Responses to Data Requests #397 and #407.

<sup>37</sup> Information sought in Data Request #93, Verizon did not provide calculations.

4	B	U	DURATION	NO	
5	B	U	PERCENTAGE	YES	YES
6	B	U	NUMBER	NO	
7	P	M	MEAN	NO	
8	P	M	PROPORTION	YES	YES
9	P	M	RATE	NO	
10	P	U	MEAN	YES	YES
11	P	U	PROPORTION	YES	YES
12	P	U	RATE	YES	YES
13			TRUNK BLOCKAGE	YES	NO
14			OUTAGE NOTIFICATION	YES	NO

Verizon currently produces monthly, CLEC specific incentive payment spreadsheets.<sup>38</sup> Because Verizon provided this information only on metrics found to be out of parity, Liberty could only test cases where there are examples of out-of-parity situations. The column Example Exists in the table above lists those test cases that Liberty could test using the data provided and those with no example of a miss.

Liberty then analyzed metrics found to be out of parity to determine if Verizon calculated the correct incentive payment. This analysis involved three additional steps:

- 3: Calculate the financial incentive associated with the sample where the metric was missed
- 4: Calculate the financial incentive associated with the chronic misses.
- 5: Compare the calculated incentive with the amount reported by Verizon.

Liberty found one example for each test case listed in the table above from the CLEC specific reports and recalculated the incentive payments. Each of the examples recalculated matched the payment determined by Verizon. However, Verizon did not provide the information necessary to verify all of the factors that affect the amount of the incentive payment. The table below shows which data fields Liberty could test and which it had to assume correct.

**Table: Data fields**

DATA FIELD	STATUS
Metric #	Assumed correct
Per Unit (U) or Per Measure (M)	Assumed correct
Metric Description	Assumed correct
VZ measure	Assumed correct
CLEC measure	Assumed correct
VZ volume	Assumed correct
CLEC volume	Assumed correct
Difference	Testable
Std. Dev.	Assumed correct
VZ % Above VZ Mean	Assumed correct
CLEC % Above VZ Mean	Assumed correct
Severity	Testable

<sup>38</sup> Response to Data Request #9.

Total Access Lines or Affected Volume	Assumed correct
CLEC Access Lines	Assumed correct
% CLEC Access Lines	Assumed correct
Per Measure Dollars to be Allocated	Testable
Per Measure / UNIT Base Dollars	Testable
Multiplier	Assumed Correct
Base Dollars X Multiplier	Testable
Per Metric Total	Testable

**c. Internal Auditing of the IP**

Liberty sought to review and evaluate Verizon’s internal auditing of the monthly Incentive Plan and payments resulting from bill credits to CLECs. The amount and depth of the auditing should be consistent with the complexity of the calculations required, the systematic and manual steps that are involved in the process, and the number of errors that Verizon, the CLECs, or the Board discovered in the past. Liberty discovered that there have been no internal audits conducted by Verizon for its IP and payments,<sup>39</sup> and that no documentation exists for Verizon’s Wholesale Quality Assurance Program.<sup>40</sup>

**d. Application of Credits**

Liberty requested documentation of the incentive payments Verizon applied to bills for two CLECs for the months of October, November, and December 2002.<sup>41</sup> Specifically, Liberty requested Verizon to provide:

- The total dollar amount credited
- A copy of the bill it was credited to
- The detailed ledger entries that comprised the total amounts
- Any adjustments Verizon would have made based on changes to the C2C Performance Reports and the Incentive Payments Reports made after it posted the initial credit.

Liberty also asked that Verizon supply all the detailed information to be able to independently confirm that it actually credited the correct amounts for the specific CLECs and months listed.

Consistent with one CLEC’s claim that it had difficulty tracking when and if Verizon credited payments to its bill, Liberty found the information from Verizon difficult to audit and understand. Verizon provided “screen prints” to attempt to document the credits it made to a specific CLEC bill,<sup>42</sup> but did not provide the actual bills it sent to CLECs. The “Exhibit Pages” or “screen prints” were inconsistent as they were not uniform from one to the other. Some that identified the CLEC by its name or an associated name and others did not. Other screen prints

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<sup>39</sup> Response to Data Request #48.

<sup>40</sup> Response to Data Request #82.

<sup>41</sup> Response to Data Request #243.

<sup>42</sup> Response to Data Request #243.



combined payments for more than one month. Finally, based on the information Liberty received from Verizon, there appeared to be some payments missing.

Liberty audited a portion of the data received from Verizon and found that it correctly captured payments in the “screen prints.” Liberty compared the associated CLEC-specific incentive reports to the “screen prints” and found some to be inconsistent. This payment process appears to lack a consistent mechanism and is difficult to track. Verizon should address this issue to more effectively track and make payments to CLECs that are easily discernable to both sides.

### **3. Findings and Recommendations**

#### **Verizon does not comply with the IP and the Board's order regarding the detail and calculations it should provide in the monthly IP reports.**

Verizon provides timely IP reports to the Board and to CLECs as required. However, with the exclusion of detailed calculations in the IP Report, it is difficult to accurately replicate the incentive payments.

#### **Verizon should request a change of the language in the IP to be consistent with its method for using the current base month with the IP chronic multiplier.**

Verizon's uses the current month as the base for applying the chronic multiplier. This is consistent with logical incentives and with Liberty's understanding of the Board's intentions. However, it is not consistent with the language in the IP that requires Verizon to use the first month in which it missed the standard as the base.

#### **Verizon could not provide the information required to verify correct IP payments. Moreover, Verizon could not prove that it had correctly applied IP payments to CLEC bills.**

The complete data set necessary to recalculate the Verizon incentive payments was not available. The data that were available permitted partial verification of the incentive payments. Liberty found that Verizon's documented procedures were consistent with the IP. Verizon has not conducted an audit of its IP process.

Verizon should make available all data necessary to independently check IP payments. Verizon should conduct its own audit of incentive payments, and should report to the Board regarding the results of this auditing. Verizon should improve its ability to demonstrate correct credit payments on CLEC bills.

## C. Systems Evaluation

### 1. Introduction and Background

Information systems play a key role in the overall quality of Verizon’s reported performance measures. For Verizon to assure accurate and reliable performance reporting, the information systems it uses for collecting, processing, transmitting, storing, and reporting the measures must have sufficient quality and controls. Verizon needs to monitor vigilantly the integrity of these information systems such that foreseeable disasters and security breaches do not substantially limit its ability to produce accurate performance results. Rigorously managed, high quality information systems must support the performance measures to insure confidence in the issued reports.

The purpose of this portion of Liberty’s review was to determine whether:

- Detailed documentation exists for procedures to extract data from relevant data stores for Verizon or CLECs, whether operational procedures adhere to the documentation, and whether Verizon has fully implemented change control procedures.
- The performance measurement process starts with complete and accurate data.
- Sufficient documentation exists describing the data storage, back-up, retrieval, CLEC access, and proprietary information protection procedures for both detailed data and results produced for performance measurement reporting, and whether operational procedures conform to such documentation.
- Sufficient documentation exists to support validation, report generation, data retention, and data extraction.
- Verizon has:
  - Adequate systems descriptions and procedures
  - Reasonable data security safeguards
  - Appropriate access controls and controls on data manipulation or changing
  - Adequate data backup procedures and practices
  - Reasonable standards for data retention
  - Appropriate data extraction standards.

Verizon implemented the Network Metrics Platform (NMP) to provide a centralized information system for calculating and reporting its wholesale performance metrics. The NMP loads performance data into its data warehouse and generates metrics stored in read-only data marts. The NMP Reports application uses data from the data marts and generates the performance reports.<sup>43</sup> Verizon calculates some measures independent of NMP, and sends the results to NMP for reporting purposes.

Verizon envisions the NMP as a system that generates all metrics from a single data warehouse platform. Currently, Verizon has implemented the majority of the metrics in the NMP, replacing the older DataLoad process. The NMP application exists on a series of HP machines located in

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<sup>43</sup> Responses to Data Requests #6, #7, and #8.

the Blue Hills, NY, data center, and has been producing reports as of the October 2002 data month.<sup>44</sup>

NMP receives its data from source systems in the operational groups in Verizon. Verizon loads these source data files into the NMP Data Warehouse. Verizon then moves the data into read-only NMP Data Marts to create an enterprise view of all relevant metrics. NMP runs the metric calculations against separate domain-specific fact tables generated from the Data Marts. The NMP Reporting application exists on a separate and distinct platform, independent of the NMP Data Warehouse and Data Marts.

The NMP and source systems run in production under the control of the Verizon Information Processing Services (VIPS) organization. VIPS manages, maintains, and monitors all the software and hardware installed in the data centers. Verizon specifies its security policy in CPS/CPI 810.<sup>45</sup>

## **2. Analysis and Evaluation**

### **a. NMP Source Data Processing**

Conversion to the NMP continues as part of Verizon’s ongoing efforts to centralize performance metric generation and reporting. For those metrics calculated within NMP, NMP receives text data files from source systems representing each of the domains. Flat files are the Verizon standard for data transfer into the NMP. There are daily, weekly, and monthly files sent to the NMP, which captures data in raw format, or *as is*, which are loaded into the NMP Data Warehouse. Verizon’s process for loading source data files into the NMP Data Warehouse consists of receiving files, performing pre-processing on the files, and loading the files into the data warehouse via the Informatica software.<sup>46</sup>

The process begins with the receipt of source files from the domain OSS systems. The source data are transferred via FTP into NMP’s source data file structure, or staging area. OSS systems also send a trigger file, signaling the successful completion of the data file transfer. This process of transferring files from OSS to the source data file structure is the entry point for all data into the NMP.

Prior to loading data into the Data Warehouse, NMP performs pre-processing.<sup>47</sup> Pre-processing includes identifying the required files for a specific day, locating the required files, verifying the integrity of the files, ensuring the file is not a duplicate, and renaming and archiving the files for data retention purposes. Scripts verify the availability of all files and that the files fulfill all dependencies prior to loading the data into the Data Warehouse.

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<sup>44</sup> Response to Data Request #89.

<sup>45</sup> Response to Data Request #105.

<sup>46</sup> Response to Data Request #107.

<sup>47</sup> Response to Data Request #107.

Verizon maintains a directory structure for file retention.<sup>48</sup> Verizon keeps files in this direct access structure for 13 months. It then transfers files to tape archive for retention for the next five years. In addition to NMP data, OSS systems that deliver data to the NMP must retain for five years all logic, decision trees, and tables used to manipulate the source data.<sup>49</sup>

Exception processing for transferred files varies by domain.<sup>50</sup> In general, the process involves the inspection of header and trailer records to determine whether the file size is within a specified percentage threshold using domain specific calculations. Scripts verify the integrity of the file. The process groups missing files and files identified as incomplete or damaged by source system. The source system contact will either resend the file or include the data in the next day’s file transmission. NMP generates error reports during each of the load processes. Not all errors mandate a retransmission of the data file. Once NMP successfully receives and verifies a file, it renames the files for archival. After archiving, NMP copies the file to the processing directory where it is ready for processing by Informatica.

Verizon must sometimes reprocess archived data files. Reprocessing files means that the NMP source data processing must be re-executed using previously archived data files. Verizon normally reprocesses files due to calculation corrections in the metrics generation process. Depending on where in the overall process the error occurs, error correction may not require reprocessing data files. In cases where Verizon implemented system changes prior to re-running the metric generation process, it may regenerate files from the source system.<sup>51</sup>

#### **b. Loading the Data Warehouse and Data Marts**

Verizon uses Informatica, an industry-leading data integration software solution, to load the source data text files into the NMP transient tables.<sup>52</sup> Each Informatica session is associated with a target transient table and has one or more source data files. All related source data files are loaded into its target transient table.

After loading the source data files, the system verifies the data during the transient to staging process. This process inserts any invalid data identified into an error table. After completing this process, the system reviews the error table and groups them by source system. The system then sends invalid rows back to the source system owners. The source system owners correct the data and include it in the next file transmission.

After moving the data from the transient area into the staging area, Verizon formats the data and readies them for loading into the NMP Data Warehouse.<sup>53</sup> Verizon considers the data loaded into the Data Warehouse to be raw data, although in many cases some OSS processing of the data occurs prior to arrival at the NMP. Once transferred to the NMP, Informatica loads the data *as-is*

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<sup>48</sup> Interviews #5-12, February 11, 2003.

<sup>49</sup> Response to Data Request #106.

<sup>50</sup> Interview #5-12, February 11, 2003.

<sup>51</sup> Interview #5-12, February 11, 2003.

<sup>52</sup> Responses to Data Requests #6, 7, and 8.

<sup>53</sup> Response to Data Request #107.

and without transformations. The Data Warehouse contains all the data fed by the source systems creating an enterprise view of the raw performance data.<sup>54</sup>

The NMP Data Marts function as the repository for all calculated metrics and provides data for the report generation processes.<sup>55</sup> The Data Marts support the use of reporting and online analysis tools for producing metric reports as well as ad-hoc querying. At this stage, the NMP transforms the raw Data Warehouse data into Data Marts data suitable for metrics calculations and reporting.

Informatica data transformation rules and associated transformation tables transform the raw data stored in the Data Warehouse as it is loaded into the Data Marts. These transformation rules support multiple versions of the text files to enable re-processing the data in order to re-create reports.<sup>56</sup> The data transformation rules and tables include:

- Calendar tables for dates
- Business relationships
- Valid CLEC lists
- Marking data exclusions
- Transforming data fields
- Providing access to additional reference tables.

Developers require access to the Microstrategy development environment to create the data transformation rules, queries, and reports. There is also a testing environment where the transformation rules, queries, and reports are tested. The VIPS group manages the production systems, and the development and testing teams do not have direct access to production NMP environment.<sup>57</sup>

### **c. NMP Reports Process**

NMP Reports currently accepts data in two file formats, Excel and ASCII, from the NMP as well as other applications.<sup>58</sup> NMP converts all Excel data to ASCII format. Once all data are in an ASCII format, NMP loads the data into report tables and generates reports.<sup>59</sup> The file management team has responsibility for obtaining the various input source files used to produce the reports.<sup>60</sup> Verizon transfers the source files via FTP to a designated server. The source files used by NMP Reports are not the OSS source files; they are the metrics results data that NMP produces. These files are loaded into the reports database.

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<sup>54</sup> Responses to Data Request #6, 7, and 8.

<sup>55</sup> Response to Data Request #107.

<sup>56</sup> Responses to Data Request #6, 7, and 8.

<sup>57</sup> Interview #5-12, February 11, 2003.

<sup>58</sup> Response to Data Request #107.

<sup>59</sup> Response to Data Request #625.

<sup>60</sup> Response to Data Request #85.

Once the data loading is complete, the production reports team verifies the accuracy of the data provided. This includes validation that there are not discrepancies within the ASCII files provided.<sup>61</sup> They perform checks to ensure that all files have been successfully loaded into the database. They report any data discrepancies found within the files to the data provider. The data provider re-checks the validity of the data and if necessary regenerates the files for re-loading into the database.

Once loaded, the data are stored in a table and are ready for report generation processing. Verizon sends the data to the SAS team to compute the z-test score values and to update the output table.<sup>62</sup> Verizon uses Excel macros to extract the data and generate the Excel spreadsheet reports.

Following the creation of the reports, the production reports team sends these reports to the test team. The testing team independently creates a Pseudo Testing Report (PTR).<sup>63</sup> The PTR is a separate and distinct reporting of the performance metrics. The team writes the PTR data retrieval SQL statements and Excel-based calculations independent of the production NMP Reports application. The purpose of the PTR is to provide an independent verification of the calculation logic that Verizon developed to produce the New Jersey Incentive Plan monthly reports.<sup>64</sup> The PTR uses the NMP domain-specific data tables, so NMP processing must be complete prior to initiating the PTR.

In the event of a discrepancy between the production NMP Reports and the PTR, the testers will work with the developers to find the root of the problem and determine whether they need to perform additional testing or development to fix the reports. Polytron Version Control System (PVCS), a version control systems, tracks software changes to NMP Reports.<sup>65</sup> Version control software, sometimes called configuration management software, manages the various versions of the software modules, tracking all changes and allowing developers to access older versions of the software modules if necessary. Verizon documents all corrections to the NMP Reports in the metrics change control process. However, there is no documented process for any necessary PTR alterations.

If the discrepancy is not in the report logic, the production reports team holds internal reviews with data providers and field staff to review for accuracy. They identify anomalies from internal trend reports, data providers, and field staff personnel.<sup>66</sup> When they identify an anomaly, they refer the issue to the data provider for validation and regeneration of files. The change control process communicates changes to input source files for NMP Reports.

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<sup>61</sup> Interview #5-12, April 16, 2003.

<sup>62</sup> Response to Data Request #85.

<sup>63</sup> Response to Data Request #407.

<sup>64</sup> Interviews #5-12, April 17, 2003.

<sup>65</sup> Response to Data Request #85.

<sup>66</sup> Response to Data Request #1.

**d. Periodic CLEC Data Transfer**

Periodically, CLECs will request a copy of the data files. Based on the CLEC’s request, Verizon provides detailed data files for the major domains, Ordering, Provisioning, and Maintenance.<sup>67</sup> Verizon transfers these data, including a copy of the CLEC C2C report, to a read-only CD and sends it to the requesting CLEC. The transferred data is a complete copy of the data and represents the CLEC’s activity for the monthly report period. There is no supporting documentation associated with the process.<sup>68</sup>

**e. Metrics Change Control**

The *Change Control Process Student Workbook* documents the change control practices for the NMP.<sup>69</sup> This training manual represents the only document for practices and procedures with respect to the metrics change control process.<sup>70</sup> Verizon uses a change control database to authorize, issue, track, and validate individual change controls.

The volume of changes varies by domain. Some domains have frequent updates, while others have had few updates. The NMP team has staff assigned to the maintenance for each domain. The NMP development team creates the updates. NMP personnel test all software updates that result from change controls prior to implementation.<sup>71</sup>

Business owners and the regulatory group approve all NMP change controls, which ultimately require executive level sign-off. NMP works with the change control staff to understand the request. Verizon holds Joint Application Development (JAD) sessions to discuss the proposed modifications with the business users.<sup>72</sup> The business owners prioritize the change controls, taking into consideration the reality of implementing the change control during the requested month. All metric impacting changes performed within the NMP application require a corresponding change control.

NMP uses the PVCS (Polytron Version Control System) tool for configuration management. The development team uses the PVCS tool to track changes within the NMP application.<sup>73</sup>

This report contains additional discussion of metric change control in Section II, part D.

**f. Data Retention**

The local wholesale metrics data retention practice ensures that Verizon can regenerate externally filed performance reports at any point over a five-year period from when it published

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<sup>67</sup> Response to Data Request #87.

<sup>68</sup> Response to Data Request #87.

<sup>69</sup> Response to Data Request #11.

<sup>70</sup> Response to Data Request #83.

<sup>71</sup> Response to Data Request #11.

<sup>72</sup> Response to Data Request #109.

<sup>73</sup> Response to Data Request #108.

the report. Thus, Verizon must retain all externally filed reports as well the underlying data used to create those reports for a period of five years. Specifically, it retains the following data:<sup>74</sup>

- OSS Decision Logic
- Detail Data Files
- Manual Metrics
- Business Rules
- Intermediate Data Files
- Summary Data Files
- Carrier-to-Carrier Performance Reports
- Payment Reports.

In addition to NMP data retention, Verizon indicated that OSS owners must retain all logic, decision trees, and tables used by the OSS to manipulate source data for five years.<sup>75</sup> These owners retain all data elements delivered to NMP in their original format, without any filtering, calculations, or summarization performed on them.

For manual metrics, where the metric results are manually calculated, Verizon retains all detailed data files used in the calculation for five years. The data provider for manual metrics must retain all source data and any filters applied to the source data.

Verizon retains business rules for five years. Since business rules change over time due to updates to the Guidelines, corrections in data calculations, and improvements in processes, Verizon must retain the set of business rules that generate each published monthly performance report. Business rules include the calculations, spreadsheets, tables, and queries that extract the data pertinent to an individual metric. Business rules also include the code Verizon uses to exclude certain data from a particular metric result.

#### **g. Validation**

The Wholesale Quality Assurance Team (WQAT) validates that the performance metric results are accurate and in compliance with the established regulatory guidelines. The WQAT team is independent and not involved with the software development, data management, or metric reporting. The process used by the WQAT validates that:

- The reports are reviewed for accuracy
- The exclusions and calculations were performed properly
- All business rules were properly implemented
- Change control records were implemented correctly
- The reported results are being mapped to the proper metrics
- Verizon followed the regulatory guidelines.

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<sup>74</sup> Response to Data Request #106.

<sup>75</sup> Response to Data Request #106.



The WQAT validates the performance metrics by calculating their own results using the same data as NMP, but developing their own algorithms. The team compares its results to the reported results to determine any discrepancies. The WQAT works with metric data providers and data reporters to identify root causes of discrepancies.<sup>76</sup>

The WQAT project manages the completion of the corrective action plans to ensure timely resolution of the accuracy issues. This includes monitoring the effects of any implemented changes. The WQAT is also responsible for recommending updates to methods and practices and for working with regulatory support for clarification on the Guidelines.

The WQAT serves as a primary point of contact for CLECs and the Board Staff on issues related to service quality and measurement accuracy issues. It is also the primary point of contact for external auditors in the event a CLEC or the Board requests an audit.<sup>77</sup>

### **g. Security**

The NMP is a closed system, meaning external systems do not directly connect to the NMP. The source systems send the NMP data via FTP, and do not have direct access to the NMP. The NMP Reporting application also loads data via a text file interface, and does not have direct access to the NMP. The closed nature of the NMP greatly reduces the overall security risks.

The report applications that do access the NMP from within Verizon do so with read-only rights, and cannot change data in the NMP. Thus, audit trails and logging of user activities is not required since no data changes or destructive activities are possible.<sup>78</sup>

Verizon segments the development teams by domain; they are the only groups with permission to make changes to the NMP software. Verizon said it would not implement metric-impacting changes within NMP without a corresponding metrics change control. VIPS manages the production systems, and development teams cannot directly access the production NMP environment.

The Verizon Security Policy includes NMP within its scope. The Verizon Security Policy consists of two components: CPS-810 (the policy statement) and CPI-810 (the policy instruction).<sup>79</sup> CPI-810 is a complete, high-level security policy document that provides general instructions for Verizon security policy compliance.<sup>80</sup> Verizon’s security policy is comprised of the following documents and internal policies:

- Verizon Code of Business of Conduct – Connecting through Integrity
- Verizon Information Security Policy – CPS-810

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<sup>76</sup> Response to Data Request #379.

<sup>77</sup> Response to Data Request #84.

<sup>78</sup> Response to Data Request #108.

<sup>79</sup> Response to Data Request #105.

<sup>80</sup> Interview #28, March 19, 2003.

- BS7799 and ISO 17799
- Verizon Information Security Technical Architecture – CSA-810 (when published)
- National Security Emergency Preparedness – CPS-540
- Computer Intrusion Response Team (CIRT) Standard Operating Procedure (SOP)
- The Standard on Disaster/Emergency Management and Business Continuity Programs.

Verizon’s security policy appears to be comprehensive and should be adaptable to future security issues.

In January 2003, the Slammer Worm affected the NMP, and Verizon-NJ filed a Force Majeure claim with the Board as a result of its effect on the performance measures for the OSS Interface Availability (PO-2-02) metric.<sup>81</sup> Verizon indicated that the virus did not infect the NMP software or its OSS source system software. However, the NMP experienced delays in the receipt of files from the source systems. NMP’s normal file processing procedures identified the late files and notified the source systems.

To promote proactive security practices, Verizon participates in industry and government security information sharing forums such as the NCC-ISAC and the Computer Emergency Response Team (“CERT”) Coordination Center at Carnegie Mellon University. Verizon also engages the services of a third-party firm specializing in software security to proactively notify Verizon of possible cyber threats.<sup>82</sup>

#### **h. NMP Availability and Recovery**

Redundancy in the NMP servers and EMC storage replication provide an NMP disaster recovery capability. The NMP also maintains regular database backups and stores a backup off-site. However, Verizon does not have an explicit disaster recovery plan at this time, and has not attempted to test its ability to recover the NMP from the existing back-ups.<sup>83</sup>

Verizon indicated that it is now reclassifying NMP as a mission critical system.<sup>84</sup> As a mission critical application, Verizon implements a disaster recovery plan calling for restoration of operations within 72 hours of a disaster. Verizon did not provide a date for implementation.

The VIPS organization that hosts the NMP strives for 99.9 percent availability for all the systems hosted in its data centers.<sup>85</sup> The Verizon Data Services organization is ISO 9001:2000 certified.<sup>86</sup>

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<sup>81</sup> Response to Data Request #399.

<sup>82</sup> Response to Data Request #399.

<sup>83</sup> Response to Data Request #397.

<sup>84</sup> Response to Data Request #398.

<sup>85</sup> Interview #28, March 19, 2003.

<sup>86</sup> Response to Data Request #502.

**i. Summary of Findings**

Liberty concluded that Verizon’s NMP has significant architectural advantages over the older DataLoad process. The centralized metrics processing capability offers greater opportunity for efficient management, easier maintenance, and higher quality in the performance measurement calculation and reporting process. The NMP represents a considerable improvement in Verizon’s ability to manage the metrics generation and reporting process. The recently implemented NMP uses state-of-the-art technology to transform, store, and calculate the raw performance data used in the performance metrics. Prior to the NMP, Verizon used the much more ad hoc DataLoad process to generate the performance metrics.<sup>87</sup> This process relied on many manual steps and a mosaic of different calculation and reporting applications, making process management challenging. Verizon no longer uses the Data Load process.<sup>88</sup>

While the NMP represents a significant improvement in the sophistication of the metrics generation process, the source data text file transmission and collection process remains relatively antiquated. Verizon would improve the data integrity and manageability of source data collection by using a transaction-oriented system.

The source systems send text file data to the NMP. Collecting, tracking, verifying, archiving, and reprocessing the large number of text files involves a complex set of processes. The current systems are not audit-friendly, and do not allow for easy data retrieval.<sup>89</sup> Managing and maintaining these systems represents a significant administrative burden while a transaction-oriented system would minimize the data handling complexity, improve the system integrity, and make the system more audit-friendly.

The Pseudo Testing Report (PTR) provides a safety net for issues not resolved in the course of normal system validation. However, the existence of the PTR points to a general lack of confidence in the development and validation process. While an independent verification of the NMP application is necessary, Verizon should expect the normal software development and validation to be sufficient. If the development and validation of the NMP application generated a quality system, the existence of the PTR would be redundant.<sup>90</sup>

The PTR functions as an independent verification of the metrics generated by NMP Reports. However, the NMP and PTR development teams work together to resolve identified issues. There is no documented process for changes to the PTR. Verizon should reconsider whether it is appropriate to have the resolution of identified discrepancies between NMP and the PTR determined by developers without business owner approval. In addition, Verizon should consider whether the change control process should govern alterations to the PTR. Verizon invests significant resources into maintaining the independence of the PTR to ensure its validity as a verification tool. However, this independence breaks down when production and testing developers work alone to determine if the identified issues exist in production or testing. Since

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<sup>87</sup> Response to Data Request #9.

<sup>88</sup> Response to Data Request #85.

<sup>89</sup> Response to Data Request #506.

<sup>90</sup> Response to Data Request #407.

Verizon uses the PTR process to assess the validity of the IP and C2C reports, the change control process would enforce the approval of any changes to the PTR.<sup>91</sup>

The high volume of change controls associated with the production NMP system demand the implementation of a more formal and rigorous validation process. The NMP validation process significantly affects the quality of the metrics reported. However, the WQAT does not maintain detailed documentation of its methods and procedures for preparing performance metric results<sup>92</sup> and Verizon has performed no internal audits of the validation and change control processes.<sup>93</sup>

The reporting errors Verizon filed with the Board for the months June through October,<sup>94</sup> in addition to the number of change controls,<sup>95</sup> indicate that a significant number of corrections were necessary to the production reports. The relative newness of NMP partly explains the high volume of change controls to the production systems,<sup>96</sup> and natural adjustments made to a system newly placed into a complex production environment. The high number of errors during the transition to NMP appears to be declining as the system stabilizes. However, it would also appear that a more rigorous and formal validation process that included periodic process audits would significantly reduce the number of necessary NMP related change controls.<sup>97</sup>

Verizon’s change control process plays a significant role in the management and quality of the NMP. In order to improve its effectiveness, Verizon should consider making more formal the change control process, and require more detailed and thorough documentation of the issues, changes, and resolutions applied. Verizon indicated that “a Change Control is a detailed document that includes all the details of a change within the NMP application and is used as an audit trail.”<sup>98</sup> However, many of the change control records Liberty reviewed were vague, did not specifically identify the changes made at the appropriate level of detail, and did not include “all the details of a change.” For example, the change control should track the modules changed, who changed them, a detailed description of the changes made, the expected result of the change, and the date and time of the change. This information is essential if the change control record is to serve as an audit trail. Furthermore, the information should be fully searchable for easy retrieval.<sup>99</sup>

From a systems perspective, the Verizon response to the Slammer Worm incident appears appropriate, especially given the large number of servers managed by the VIPS group (in 2002 Verizon applied over 27,000 software patches to Microsoft servers alone).<sup>100</sup> However, it is not clear that the explanation for not patching all appropriate systems is sufficient in this, or any other case. Verizon should document patches applied as well as patches rejected for each server

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<sup>91</sup> Response to Data Request #407.

<sup>92</sup> Response to Data Request #173.

<sup>93</sup> Response to Data Request #82.

<sup>94</sup> Response to Data Request #20.

<sup>95</sup> Response to Data Request #256.

<sup>96</sup> Response to Data Request #90.

<sup>97</sup> Response to Data Request #504.

<sup>98</sup> Response to Data Request #108.

<sup>99</sup> Response to Data Request #21.

<sup>100</sup> Response to Data Request #399.

with an accompanying explanation as to why it did not apply a patch. This information would improve Verizon's ability to manage the patch maintenance process.

Verizon's recent decision to reclassify the NMP as mission critical should significantly improve the NMP's disaster recovery capability. Verizon should also schedule a security audit for the NMP. At the time of this audit, no disaster recovery plan existed for the NMP and Verizon had not executed disaster recovery tests. Verizon's planned reclassification of the NMP as a mission critical system ensures that it implements a disaster recovery plan, allowing it to restore normal production operations within 72-hours of a disaster.<sup>101</sup> Verizon should also test this disaster recovery plan to ensure its effectiveness as directed in CPI-810. Verizon should schedule an internal security audit as directed in CPI-810.<sup>102</sup> Tracking NMP maintenance via a centralized database would also improve the NMP's manageability.<sup>103</sup>

### **3. Findings and Recommendations**

#### **Verizon does not have a well documented process for reprocessing archived data.**

Verizon maintains the appropriate data and logic to meet the regulatory data retention requirements. However, it could not provide Liberty with a well documented process for re-processing archived data. Verizon should create a standard operating procedure for re-processing archived data files.

Verizon did not present a coherent process for re-processing older text files after it had updated the software and data formats several times. Verizon archives old versions of the software that it could use for re-processing archived data, but Verizon did not have a procedure for loading, running, and verifying older versions of the software.<sup>104</sup> Without a coherent, documented plan, it is not clear that Verizon could assemble the various necessary software and data components to re-process data without a significant and time-consuming effort. Verizon stated that it evaluates requests to rerun using older data on a case-by-case basis.<sup>105</sup>

#### **Verizon does not uniformly apply the CPS/CPI-810 security policy throughout the organization.**

CPS/CPI-810 provides a comprehensive, high-level security policy for Verizon. More importantly, Verizon trains its staff on the importance of good security practices and provides them with regular security bulletins. However, Verizon does not appear to uniformly apply CPI-810. For instance, the NMP does not use the same availability and classification schemes documented in CPI-810, and could not map NMP's status to the terminology used in CPI-810. NMP did not follow many of the most basic policies outlined in CPI-810 including performing

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<sup>101</sup> Responses to Data Requests #397 and #398.

<sup>102</sup> Interview #28, February 11, 2003.

<sup>103</sup> Response to Data Request #505.

<sup>104</sup> Response to Data Request #107.

<sup>105</sup> Interview #28, February 11, 2003.

periodic security audits and performing periodic drills to ensure the recoverability of the system. Verizon does appear to train staff on security, but the training does not clearly map back to CPI-810. Furthermore, Verizon staff receive periodic bulletins advising staff of security issues.<sup>106</sup> There should be a tighter relationship between Verizon’s security policies and practices. Although, Verizon’s security practices appeared adequate, the gap between the policy and the practice makes the overall security assessment more challenging, causing issues for both auditors and management.<sup>107</sup>

## **D. Metrics Change Control**

### **1. General Background and Process Definition**

Metrics Change Control (MCC) is the process used by Verizon to manage, track, and build an audit trail for all changes to wholesale metrics, and to communicate such changes to CLECs and the Board. Verizon intends the MCC to help ensure that CLECs and the Board retain the ability to validate Verizon’s wholesale metric results and adherence to the Guidelines.<sup>108</sup>

Liberty’s review of MCC sought to:

- Review Verizon’s organization and procedures for the control and updating of the MCC reports.
- Review past MCC Notifications and Verizon’s system for keeping track of these reports.
- Determine whether Verizon obtained appropriate approval for changes implemented.
- Determine whether the MCC process properly communicated changes to the CLECs.
- Review all provided documentation related to MCC and determined whether Verizon is implementing them as written.
- Determined whether Verizon tests changes before releasing them for production.

Verizon uses three categories of Metric Change Control Records (MCCR):<sup>109</sup>

- Metric Change Control Request – this category includes the following five types of changes:
  - Regulatory Orders – changes implementing a new metric or a change that may generate new metric families or product disaggregation
  - Process Improvement Changes – changes in Verizon’s operating support systems that affect metric feeds
  - New Products and Services
  - Administrative Changes, *e.g.*, file name changes
  - Template Changes.

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<sup>106</sup> Response to Data Request #503.

<sup>107</sup> Interview #28, February 11, 2003.

<sup>108</sup> Response to Data Request #11.

<sup>109</sup> Response to Data Request #21.

- Data Calculation Clarification – this category clarifies the definition or method of calculating a metric.
- Data Calculation Corrections – this category corrects a deficiency in the calculation or the completeness of a metric.

There are three control points when Verizon notifies CLECs of metric change control activity:<sup>110</sup>

- Initial Notification – CLECs are to receive notification, via email, within one business day after the MCCR has been assigned a scheduled filing date. The Data Calculation Clarification category does not have a scheduled filing date; Verizon is to notify CLECs within one business of the approval. Verizon assigns all MCCRs the status of “Scheduled” when the initial notification occurs.
- Notification of Rescheduling MCCRs – CLECs are to receive notice, via email, of rescheduling within one business day.
- Notification of Completion or Retracted MCCRs – CLECs are to receive notice, via email, of all completions or retractions of MCCRs. Verizon assigns the MCCRs the status of “Completed or Retracted” with this notification.

## **2. Analysis and Evaluation**

### **a. Verizon’s MCC Process**

Domain directors reporting to the Executive Director of Regulatory Support are responsible for creating metric change controls. Verizon organized the eight metric domains under four directors. A fifth director in this group has responsibility for the IP and metric statistics. Reporting to the Executive Director for Wholesale Quality Assurance, the change control implementation and metrics integrity group has responsibility for issuing and assuring the correct implementation of change controls.<sup>111</sup>

The responsibility for determining how a particular change would affect reports of other related metrics is the responsibility of the requesting party or the author of the change. Verizon requires that he or she executes a detailed testing and implementation plan prior to any change to the existing system. Verizon tests software changes that result from metric change controls prior to implementation and the IT organization tests systems changes. In addition, Verizon produces and validates metric report test files prior to final production. Verizon assigns data validator(s) the responsibility of completing the work and generating a test file to validate the implementation of the change according to MCCR requirements. At the same time, the Verizon’s data reporter(s) use the test file to verify that mapping to the report template are correct. If mapping validation is

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<sup>110</sup> Response to Data Request #21.

<sup>111</sup> Response to Data Request #1 and Interview #38, March 27, 2003.

successful, Verizon puts the change into production and produces a production file. When the production file runs successfully, the data reporter signifies that testing is complete.<sup>112</sup>

Verizon sends each MCC notification by email to a designated list of addresses. These notifications supply high level information that gives the reader a general understanding of the change. However, and in most cases, they do not include enough detail to permit the reader to understand the reason for or effect of the change. They do not always indicate which particular metrics the change affects, any expected result of proposed changes or final result of implemented changes, reasons for canceling or rescheduling implementation, and other information that would be useful.

Verizon indicated that CLECs do not have direct input to the MCC process, nor does Verizon believe such input is appropriate.<sup>113</sup> CLECs have rights and privileges in the review process through the Industry Carrier Working Group (IMCWG) meetings and access to the Verizon 800 CLEC Help Line. These two access vehicles are available to CLECs after posting of metrics changes.

In response to Liberty’s request for documentation associated with MCC, Verizon provided a “Change Control Process Student Workbook.”<sup>114</sup> This document clearly describes the change control process from implementation to validation to completion. Verizon informed Liberty that there is no prioritization process with respect to MCC.<sup>115</sup> Verizon provided very limited documentation about how it classifies changes, and no documentation of the MCC approval process.<sup>116</sup>

Verizon said that it did not have procedures for internal auditing of the MCC process<sup>117</sup> and that no internal audits had been performed that were specific to the New Jersey Guidelines, IP, or MCC.<sup>118</sup>

## **b. Summary of Changes**

Liberty requested that Verizon provide its index or tools used to track and analyze metric change control notification. Verizon indicated that it maintained all change controls in a Lotus Notes database that was not available to Liberty, and did not provide the features that Liberty requested, such as the ability to search by metric group or specific metric.<sup>119</sup> During the course of Liberty’s audit, Verizon developed a spreadsheet index of change controls that permitted some limited analyses.<sup>120</sup>

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<sup>112</sup> Response to Data Request #11.

<sup>113</sup> Response to Data Request #21 and Interview #14, February 7, 2003.

<sup>114</sup> Response to Data Request #11.

<sup>115</sup> Response to Data Request #46 and Interview #14, February, 7,2003.

<sup>116</sup> Responses to Data Request #244.

<sup>117</sup> Response to Data Request #48.

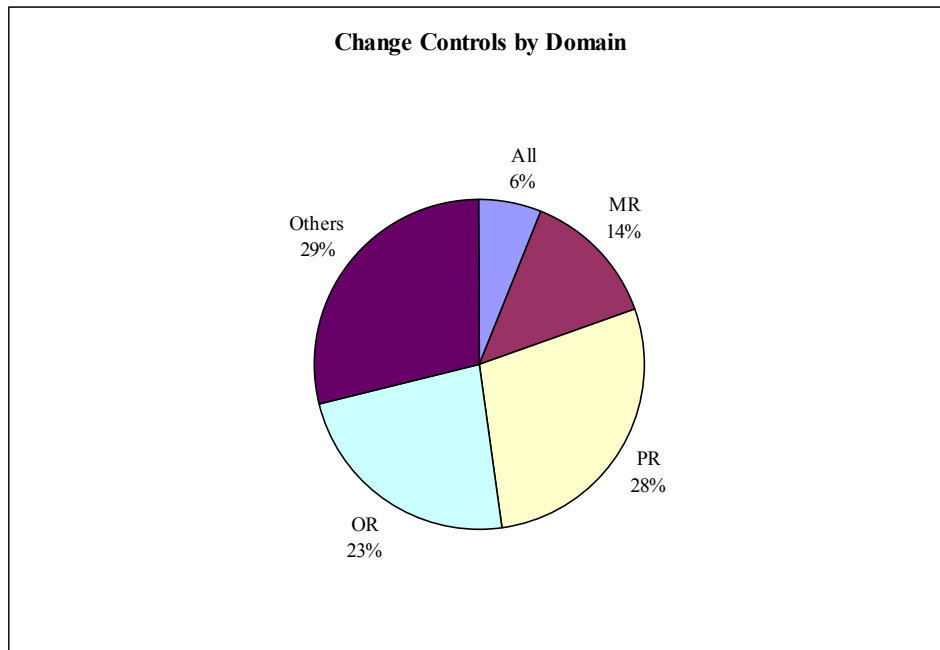
<sup>118</sup> Response to Data Request #82.

<sup>119</sup> Response to Data Request #21.

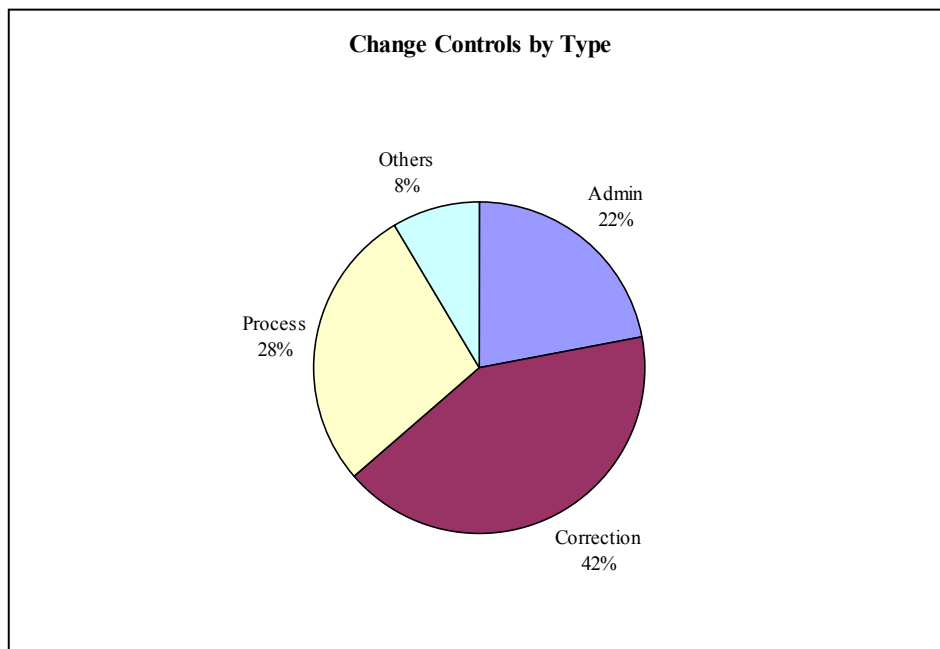
<sup>120</sup> Revised response to Data Request #21 and separate e-mail dated January 13, 2003.



For 551 changes issued primarily during 2001 and 2002, Liberty found that over half related to the provisioning and ordering domains as displayed in the chart below.

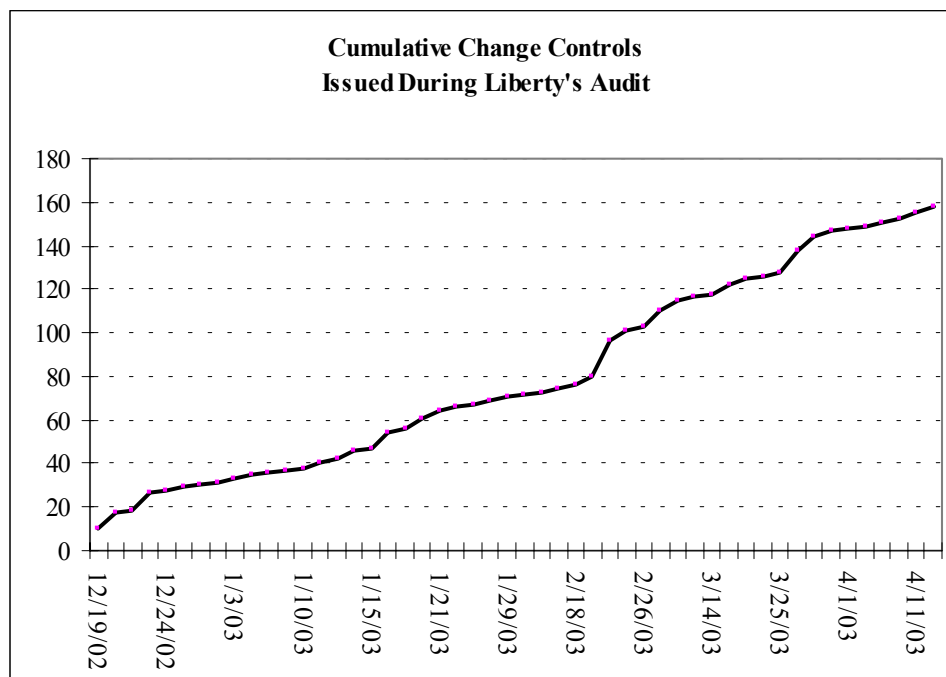


As to types of changes, those associated with data calculation corrections were the most common as displayed in the chart below.



Liberty found that Verizon issued a significant number of change controls due to the implementation of NMP as its standard metric calculation and reporting system. For one group of 547 change controls, the implementation of NMP caused 144.<sup>121</sup>

During the course of Liberty's audit, Verizon implemented many changes as shown on the chart below. A significant number of these changes continued to be in the data corrections category.



Verizon actively uses its MCC to document corrections, improvements, and other changes in the way it calculates and reports wholesale performance. The number and nature of the changes indicate that Verizon's internal processes to find and correct errors and to make improvements and updates are effective. However, those same characteristics also indicate that Verizon's wholesale performance measurement processes are not mature and stable. While many of the change notices relate to the implementation of NMP and thus could be expected, many others document problems in the computer code or methods Verizon uses to report its performance.

### 3. Findings and Recommendations

#### **Verizon's metric change control process needs improvement.**

Verizon's metric change control process is active. Verizon uses it to inform CLECs and the Board about changes that affect performance reporting and the IP. However, Verizon should improve the MCC process. Verizon notifies the Board and CLECs in a timely fashion about changes it makes to systems and methods that affect wholesale performance reporting. In most cases, however, the notifications do not provide enough information to permit the reader to gain

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<sup>121</sup> Response to Data Request #504.

an understanding of the effect of the problem discovered or the change Verizon is implementing. In many instances Verizon does not clearly describe the nature of the change. The number and complexity of the change notifications indicate the need for some level of internal auditing to ensure that Verizon has followed its procedures, obtained approvals, and completed appropriate testing and validation of metric changes. Verizon should improve its change control documentation, particularly in the areas of the determination of change type, change control creation, and change control prioritization. While Verizon's system for managing and tracking change controls was not completely visible to Liberty, it appears that the system does not provide the capability for users to easily track changes by type and by exactly which metrics the change affects.

**The large number and the type of change control notifications that Verizon has issued recently indicate that its performance reporting systems and methods are not stable and reliable.**

While demonstrating that Verizon is active in finding and correcting problems, and while the implementation of NMP was a significant cause, recent change controls show that Verizon's performance reporting continues to be in a state of change and instability. Verizon should track its changes by date and type so that it could report on this internal indicator of the stability of its processes. Verizon should perform its own analysis of change controls to determine opportunities to improve the reliability of metric result reporting.

### **III. Pre-Ordering Performance Measures**

#### **A. General Background and Summary of Findings**

The pre-ordering measures report on various aspects of Verizon’s OSS systems’ availability and responsiveness. There are 8 pre-ordering measures that include a total of 27 sub-metrics. The IP includes all of the pre-ordering measures, although not all of their sub-metrics are included in it, and taken collectively, they represented a small percentage of total IP payments during the period November 2001 through January 2003.

Liberty found that, using Verizon’s methods and interpretations of the Guidelines, reported results have been largely accurate. However, two important findings were common to most of the pre-ordering performance measures. First, Verizon does not adhere to the Guidelines, and second, Verizon has essentially no useful procedures for or documentation of the calculation of many of the measures. With respect to the Guidelines, Liberty found cases in which Verizon should request changes to the Guidelines themselves. But in other cases, Verizon makes data exclusions that are not consistent with the Guidelines or is interpreting the Guidelines so as to make the performance measure result contain no useful information. Verizon’s methods for reporting pre-ordering measure results include many manual steps. Because of this, Verizon’s lack of procedural documentation, and the errors in the documentation that does exist, should be of particular concern.

#### **B. PO-1, Response Time OSS Pre-Ordering Interface**

##### **1. Background**

The PO-1 measures report on the responsiveness of Verizon’s OSS systems. There are eight sub-metrics, each reporting on the average response time of a different transaction type (*e.g.*, requesting and receiving a customer service record). There are three different means by which a CLEC may access Verizon’s OSS systems: Electronic Data Interchange (EDI), Web Graphical User Interface (Web GUI), and Common Object Request Broker Architecture (CORBA). With the exception of PO-1-09, Verizon reports performance results for all of the PO-1 sub-metrics separately for each of those three access methods.

For all but PO-1-09, the standard for these sub-metrics is parity with Verizon retail plus 4 seconds. For PO-9, the standard is parity with Verizon retail plus 10 seconds. The differences of 4 seconds and 10 seconds are to account for variations in functionality and security interface requirements between retail and CLEC transactions. The IP includes all of the PO-1 sub-metrics except PO-1-04. However, only two of these sub-metrics have generated IP payments. PO-1-02 resulted in \$30,000 of payments during the period November 2001 through January 2003, and PO-1-05 resulted in \$120,000 of payments during that same period.<sup>122</sup>

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<sup>122</sup> Incentive Payment Reports provided to Liberty by the Board’s Staff.

Verizon determines response times for CLEC transactions for PO-1-01 through PO-1-06 and for PO-1-09 using actual CLEC transaction data for the month. Verizon measures these response times from the time Verizon's systems receive the CLEC's query to the time Verizon's systems send out a response. Verizon measures response times for all of the retail transactions using its EnView performance evaluation software tool, which is also used to measure response time for CLEC PO-1-07 transactions. EnView emulates the transactions of a Verizon (and, for PO-7, a CLEC) employee accessing Verizon's OSS. EnView initiates ten transactions per hour (for each of the transaction types) during every normal business hour. The response times measured by EnView are the time from when EnView sends a query to the Verizon systems to the time it receives a response. Thus, transmission times are included in the EnView transaction times, but they are not included in the actual CLEC transaction times that are measured. Verizon's interface systems time out at 60 seconds. In the case of both EnView and actual CLEC transactions, Verizon excludes timeouts from all of the PO-1 measures.

The PO-1 sub-metrics all have the same two exclusions:

- Sundays, Verizon holidays, and the hours from 10 pm to 6 am, Monday through Saturday
- Failures of the EnView robot or its transmission links.

Verizon reports all of the PO-1 sub-metrics for Verizon retail and for CLECs in aggregate. Verizon reports on a statewide basis.

The formulas for the PO-1 sub-metrics are all very similar, varying in the measured transaction type. These formulas are:

PO-1-01 – Average response time – Customer service record:

*(Sum of all response times for CSR transactions) / (Number of CSR transactions)*

PO-1-02 – Average response time – Due date availability:

*(Sum of all response times for due date availability) / (Number of due date availability transactions)*

PO-1-03 – Average response time – Address validation:

*(Sum of all response times for address validation) / (Number of address validation transactions)*

PO-1-04 – Average response time –Product & service availability:

*(Sum of all response times for product & service availability) / (Number of product & service availability transactions)*

PO-1-05 – Average response time – Telephone number availability & reservation:

*(Sum of all response times for TN availability/reservation) / (Number of TN availability/reservation transactions).*

The Guidelines note that Telephone Number Availability and Reservation must always be combined with Address Validation. For Verizon service representatives, Verizon states that this is a required two-step process.

PO-1-06 – Average response time – Facility availability (ADSL loop qualification)

*(Sum of all response times for loop qualification) / (Number of loop qualification transactions)*

PO-1-07 – Average response time – Rejected query

*(Sum of all response times from enter key to reply on screen for a rejected query) / (Number of simulated rejected query transactions).*

A *rejected query* is a query that Verizon’s pre-ordering system cannot process, resulting in an error message to the sender.

PO-1-09 – Average response time – Parsed CSR

*(Sum of all response times for Parsed CSR transactions) / (Number of Parsed CSR transactions).*

There is no parsed CSR transaction for Verizon service representatives. Verizon uses the retail PO-1-01 results generated using EnView as the comparative for PO-1-09 because these are CSR transactions.

## **2. Analysis and Evaluation**

It is likely that the patterns of actual CLEC and Verizon service representatives’ transaction volumes are not uniform throughout the day. That is, for example, there may be more use made of Verizon’s OSS systems between 10 am and 11 am than there is between 6 am and 7 am. However, EnView performs 10 transactions per hour during every hour, and Verizon counts all of its transactions equally. Liberty wanted to investigate whether Verizon distorted the EnView results because those results are not weighted by the actual amount of use that occurs during each different one-hour period of the day. Supporting the need for this analysis is the fact that the EnView response times vary considerably by time of day.<sup>123</sup> Liberty requested the percent of actual Verizon service representative transactions that were conducted during each one hour period from 6 am to 10 pm. Verizon responded that it did not have the capability to provide that data.<sup>124</sup> Accordingly, Liberty could not perform its planned analysis.

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<sup>123</sup> Response to Data Request #63.

<sup>124</sup> Response to Data Request #59.

Liberty reviewed the Wholesale East business rules governing CLECs’ submission of pre-ordering OSS transactions.<sup>125</sup> Liberty reviewed the LSOG5 Version 5.4.1 from Verizon’s wholesale web site to understand the steps gone through during submission of each transaction type. Liberty also reviewed the EnView scripts used to simulate transactions.<sup>126</sup> Liberty’s review did not reveal any inconsistencies.

Liberty requested that Verizon provide supporting information to show that 10 EnView transactions per hour for each transaction type yield a statistically valid sample size.<sup>127</sup> Liberty reviewed Verizon’s response and concluded that the sample size used by Verizon is adequate.

Liberty noted that, at least for the period June 2002 through April 2003, the reported Verizon retail results for PO-1-06 were between 6 and 9 seconds longer than the reported CLEC results, although the standard for the CLEC results is Verizon retail plus 4 seconds. Liberty requested any analysis that Verizon had done on this large difference.<sup>128</sup> Verizon stated that: “The fact that retail performance is greater than the CLEC performance is inconsequential....” While Liberty does not agree that this sizable difference is inconsequential, Liberty did not pursue the question of the performance standards set in the Guidelines.

Liberty noted that the New Jersey performance results reports do not include the number of observations for any of the PO-1 sub-metrics. Verizon stated that it does not show them on the report because the New Jersey Order did not specifically request that it display the observations.<sup>129</sup>

Verizon has stated that it must always combine Telephone Number Availability & Reservation with Address Validation, and that this is a required two-step process for Verizon service representatives. Verizon confirmed to Liberty that this is also a required two-step process for CLECs.<sup>130</sup>

PO-1-07 measures the average response time of rejected queries. It has a standard of retail time plus 4 seconds, even though Verizon uses EnView to measure both the retail and the CLEC transaction times. Verizon has stated that different steps are required for the retail and CLEC transactions, justifying the 4-second differential. Liberty learned that EnView issues the same request for both the wholesale and retail transactions. The only difference is that the CLEC PO-1-07 transactions go through the OSS interface while the retail PO-1-07 transactions are issued directly to the OSS.<sup>131</sup>

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<sup>125</sup> Response to Data Request #65.

<sup>126</sup> Response to Data Request #67.

<sup>127</sup> Response to Data Request #58.

<sup>128</sup> Response to Data Request #286.

<sup>129</sup> Response to Data Request #64.

<sup>130</sup> Response to Data Request #70.

<sup>131</sup> Response to Data Request #69.

### 3. Findings and Recommendations

#### **Verizon is not adhering to the definition of response time in the Guidelines for PO-1.**

The Definitions section of the Guidelines for PO-1 states that response time is:

*The time, in seconds, rounded to the nearest 1/100<sup>th</sup> of a second, that elapses from issuance of a query request to receipt of a response.*

This definition describes how Verizon measures response time for retail transactions using EnView. However, for metrics PO-1-01 through PO-1-06 and PO-1-09, Verizon does not measure the CLEC response times that way. Rather, Verizon measures from the time Verizon receives the query to the time Verizon sends out a response, a shorter time interval. Liberty asked Verizon to provide support that its exclusion of the CLEC round-trip transmission times does not distort the comparability of the performance results. In its response, Verizon chose not to provide any such justification.<sup>132</sup>

Liberty recommends that Verizon request a revision to the *Definition* section of the Guidelines to note that Verizon measures response time using different start and stop points for CLECs and for Verizon retail.

#### **Verizon has essentially no documented policies, procedures, or guidelines that govern how the PO-1 metric results are to be developed and calculated.**

Liberty requested that Verizon provide all policies, procedures, guidelines, handbooks, flow diagrams, technical documentation, or other documents that are related to the determination and reporting of performance measures in the Pre-Ordering category.<sup>133</sup> The response included no documentation for PO-1.

Liberty recommends that Verizon develop and document procedures for the calculation and reporting of PO-1. While PO-1 is largely automated, it is nonetheless important to have clear, detailed documentation of the entire process undertaken to develop the data and calculate the PO-1 performance results.

### **C. PO-2, OSS Interface Availability**

#### **1. Background**

PO-2 measures the availability of the Verizon OSS pre-ordering and maintenance interfaces. It reports on the percent of scheduled available time that each interface is actually up and operational for the CLECs. There are three PO-2 measures and a total of 11 sub-metrics for this

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<sup>132</sup> Response to Data Request #60.

<sup>133</sup> Response to Data Request #6.



measure. Verizon reports these measures for each OSS interface that serves New Jersey CLECs. These interfaces usually serve CLECs in other states as well. All of the PO-2-02 sub-metrics are included in the Verizon IP. For the period November 2001 through January 2003, the PO-2-02 metrics resulted in \$120,000 of incentive payments by Verizon.<sup>134</sup>

The scheduled available times for the pre-ordering interfaces are:

- Prime time – 6 am to 10 pm ET, Monday through Saturday, excluding holidays
- Non-prime time – 10 pm to 6 am ET, Monday through Saturday, and all day on Sundays and holidays.

The scheduled available times for the maintenance interfaces are:

- Prime time – 6 am to 12:01 am ET, Monday through Saturday, excluding holidays
- Non-prime time – 12:01 am to 6 am ET, Monday through Saturday, and all day on Sundays and holidays.

For the EDI, Web GUI, and CORBA interfaces, Verizon is required to measure availability using EnView and CLEC trouble reports. As discussed above under PO-1, EnView performs one transaction of each transaction type every six minutes for each type of interface. If EnView has at least one transaction type that has a successful transaction for a particular interface, then Verizon considers that interface to have been available for that 6-minute period. If no EnView transaction submitted through the interface is successful during the 6-minute period, but at least one OSS was available during that period, then Verizon considers the interface as having been unavailable during that 6-minute timeframe. Verizon also includes in PO-2 the interface downtime identified by means of CLEC trouble reports.

For the maintenance electronic bonding interface, Verizon is planning to mechanize the downtime detection process. Until it does so, Verizon identifies the time the interface is unavailable using CLEC trouble reports and outages identified by Verizon personnel that CLECs do not report.

The exclusions listed in the PO-2 *Exclusions* section of the Guidelines are:

- Troubles reported but not found
- Troubles reported by a CLEC that were not reported to Verizon’s designated trouble-reporting point (according to Appendix L of the Guidelines, this trouble-reporting point is the Verizon Wholesale Customer Care Center)
- Scheduled interface outages for major systems releases where CLECs were provided with advance notification of the downtime in compliance with Verizon Change Management Guidelines.

However, there is another exclusion, which is described in the *Methodology* section of the PO-2 Guidelines, but is not listed in its *Exclusions* section. If EnView does not make any transactions during a particular 6-minute interval, then Verizon should exclude that 6-minute interval from both the numerator and denominator of the PO-2 calculations, because that means that EnView

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<sup>134</sup> Incentive Payment Reports provided to Liberty by the Board’s Staff.

was not functioning properly. The actual OSS interfaces may or may not have been functioning properly during that 6-minute period.

The formulas for the PO-2 metrics are:

PO-2-01 – OSS Interface Availability – Total

*(Number of hours in the month – Number of hours interface is not available during month) / (Number of hours in month)*

Verizon reports PO-2-01 separately for the CORBA pre-ordering, Web GUI maintenance, and Electronic bonding maintenance interfaces.

PO-2-02 – OSS Interface Availability – Prime time

*(Number of prime time hours in the month – Number of prime time hours in month interface is not available) / (Number of prime time hours in month)*

Verizon reports PO-2-02 separately for the EDI pre-ordering, Web GUI pre-ordering, CORBA pre-ordering, Web GUI maintenance, and Electronic bonding maintenance interfaces.

PO-2-03 – OSS Interface Availability – Non-Prime time

*(Number of non-prime time hours in the month – Number of non-prime time hours in month interface is not available) / (Number of non-prime time hours in month)*

Verizon reports PO-2-03 separately for the CORBA pre-ordering, Web GUI maintenance, and Electronic bonding maintenance interfaces.

## **2. Analysis and Evaluation**

Some computer systems have the capability to self-report when they are not functioning properly. Liberty requested information from Verizon regarding any self-reporting capability the OSS interface systems may have. Verizon responded that its systems do not have the capability to directly report when the interface is down.<sup>135</sup>

As noted above, Verizon includes interface downtime identified by means of CLEC trouble reports. In this case, the start time of the unavailable period is when the CLEC called in the trouble (as opposed to the time the CLEC says the trouble began) and the end time of the unavailable period is when Verizon has closed the trouble (as opposed to the time when Verizon has notified the CLECs that the interface is now available again).<sup>136</sup>

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<sup>135</sup> Response to Data Request #76.

<sup>136</sup> Interview #2, February 7, 2003.

Some Verizon interfaces have more than one completely independent interface facility, termed a *complex*. EDI pre-ordering has two completely independent complexes, each consisting of a server and a backup server. CORBA also has two complexes, one supporting direct connections and the other supporting Internet connections. Web GUI has one complex with four servers, and Electronic Bonding has one complex with two servers.<sup>137</sup> Each CLEC is assigned to one complex for each interface they use. The denominators of the PO-2 measures include the sum of the hours that these independent interfaces should have been available. The numerators similarly take into account these multiple complexes.

EnView provides data on OSS interface availability, as do CLEC trouble reports. EnView also provides the required data on OSS availability. Verizon accumulates the unavailable OSS interface minutes from these two sources into two spreadsheets. All of the data in the two spreadsheets are identical except that each spreadsheet contains data from a different EDI complex. Verizon then uses the spreadsheets to calculate the number of prime time and non-prime time unavailability minutes. The spreadsheets also accumulate the number of Not Polled (NP) minutes, which are the minutes when EnView did not submit transactions. However, Verizon does not use the NP data in its PO-2 metric results calculations.<sup>138</sup> Verizon personnel then review the Verizon forecast website to identify any intervals during the month that had scheduled interface outages where Verizon provided CLECs with advance notice of the outage. Verizon excludes unavailable minutes during these intervals from the unavailability calculation as permitted by the *Exclusions* section of the Guidelines. (One must be careful in using the spreadsheets because they highlight and accumulate ordering prime time and non-prime time, not maintenance prime and non-prime time, which are different). Simple arithmetic calculations then yield the PO-2 performance results.

Liberty requested all OSS interface CLEC trouble reports and other source documents for December 2002 as well as all PO-2 metric calculation work papers Verizon used to prepare the PO-2 results for that month.<sup>139</sup> There were no CLEC reported interface outages during December 2002,<sup>140</sup> so the only source data were from EnView. Liberty assessed the Verizon calculation methods and also recalculated the December 2002 results using the source documents. Liberty’s first finding below discusses this analysis.

Liberty requested Verizon’s PO-2 documentation in order to assess its completeness, accuracy and clarity.<sup>141</sup> Verizon provided none.

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<sup>137</sup> Response to Data Request #77.

<sup>138</sup> Interview #47, May 1, 2003, and response to Data Request #405.

<sup>139</sup> Response to Data Request #160.

<sup>140</sup> Response to Data Request 406.

<sup>141</sup> Data Request #6.

### 3. Findings and Recommendations

#### **Verizon is not following the *Methodology* section of the Guidelines for PO-2.**

The *Methodology* section of the Guidelines for PO-2 states that:

*Availability is calculated by dividing the total number of 6 minute measurement periods in the measured portion of a month (Total, Prime Time, or Non-Prime Time) (excluding unmeasured 6 minute measurement periods) into the number of periods with no successful transactions for the month, subtracting this from 1, and multiplying by 100.*

However, Verizon is not in fact subtracting the unmeasured 6 minute measurement periods before it performs its division. This serves to inappropriately improve the reported PO-2 results. Verizon’s justification is that, even though a 6-minute period may go unmeasured by EnView, CLECs could still call in a trouble report for that 6-minute period.<sup>142</sup> This reasoning by Verizon, which Liberty believes is not consistent with the intent of the Guidelines, would mean that there would **never** be an unmeasured 6-minute period as long as Verizon had at least one CLEC customer.

For example, for December 2002 for CORBA non-prime time, Verizon reported results of 99.94 percent. Verizon obtained this result by taking the total 41,280 of non-prime time minutes and dividing it into the number of minutes of non-prime time availability which was  $41,280 - 24 = 41,256$ . Thus,  $41,256/41,280 = .9994186$ . The proper calculation as per the Guidelines would have been different. There were a total of 3,078 non-prime time minutes during which there were no measurements.<sup>143</sup> Verizon should have subtracted this number from the numerator and denominator when doing the calculation. Thus, the proper calculation would have been  $(41,280 - 3,078 - 24)/(41,280 - 3,078) = 38,178/38,202 = .9993717$ . While the reported result would have been the same 99.94 percent because of rounding, Verizon’s procedure is incorrect and could result in incorrect answers depending on the number of minutes during which there were no measurements and the number of outage minutes.

In response to a Liberty data request, Verizon said, in part, that:<sup>144</sup>

*EnView has enough redundancy built in that it will always have the capability to submit transactions to get metrics.*

Independent of what Verizon intends this response to mean, there frequently are 6-minute periods when EnView does not submit transactions or get metric data. Furthermore, the *Methodology* section of the Guidelines for PO-2 also states that:

*Verizon will include in its reports, as a footnote, the number of 6-minute measurement periods that were excluded from measurement because no EnView measurement transactions occurred.*

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<sup>142</sup> Response to Data Request #712.

<sup>143</sup> Response to Data Request #160.

<sup>144</sup> Response to Data Request #158.

However, Verizon does not include the required footnotes in its reports. Verizon’s justification is that: “Verizon includes in a footnote on the report when EnView is down and cannot execute transactions. Verizon does not consider a NP bucket for one state to be indicative of an EnView failure.”<sup>145</sup> Liberty considers this justification completely inadequate, especially given the fact that, as quoted above, the Guidelines’ footnote criterion is that: “no EnView measurement transactions occurred.”

For example, the December 2002 report should have footnoted that Verizon excluded 513 6-minute periods (equivalent to 3,078 minutes) from the CORBA non-prime time results.

Liberty recommends that Verizon follow the Guidelines by excluding unmeasured measurement periods from both the denominator and numerator of its PO-2 calculations and by including the required footnotes about the number of 6-minute periods that it excluded from the measure.

**Verizon is not using EnView to measure availability of one of the CORBA complexes for PO-2.**

The *Methodology* section of the Guidelines for PO-2 states that:

*Verizon will measure availability of the EDI, Web GUI, and CORBA interfaces based on: (a) EnView measurement and, (b) out of service troubles reported by CLECs.*

However, Liberty learned that EnView is not used to measure availability of the CORBA complex that supports direct connections. It only measures availability of the CORBA complex that supports Internet connections. Thus, Verizon reflects only CLEC trouble reports in the downtime of the direct connection CORBA complex.

Liberty recommends that Verizon follow the Guidelines for PO-2 by using EnView to measure availability of the direct connection CORBA complex.

**Verizon has no documented policies, procedures or guidelines that govern how the PO-2 metric results are to be developed and calculated.**

Liberty recommends that Verizon develop and document procedures for the calculation and reporting of PO-2. Documented procedures are particularly important for this measure because of the manual steps in Verizon’s process. For example, as noted above, the spreadsheets Verizon uses to calculate PO-2 results highlight and accumulate ordering prime time and non-prime time, not maintenance prime and non-prime time (which are different). A user must be aware of this, and compensate accordingly, when working with the spreadsheets to calculate maintenance results.

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<sup>145</sup> Response to Data Request #713.

**Readers of Verizon-NJ’s metric performance reports should be aware of the manner in which Verizon is making its exclusions for PO-2.**

One exclusion in the Guidelines is for “scheduled interface outages for major system releases where CLECs were provided with advanced notification of the downtime in compliance with Verizon Change Management Guidelines.” In these cases, Verizon does actually exclude the outage in the sense that its metric reporting is exactly as if the outage had not occurred. For example, Verizon provided a notice to CLECs that there might be an outage between 6 pm and midnight on December 21, 2002, due to a weekend release. There was an outage during that period, and Verizon’s reporting was as if that outage had not occurred. Some readers of the metric performance report might assume that Verizon would exclude the period of the possible outage, in the example that would be 6 hours, from the denominator of the measure and also exclude any outages that occurred during that period from the numerator calculation, but Verizon’s method, as described, is different and will always provide more favorable results.

In addition, although the Guidelines mention it elsewhere, the PO-2 *Exclusions* section does not list the exclusion of 6-minute intervals during which EnView is not functioning.

## **D. PO-3, Contact Center Availability**

### **1. Background**

PO-3 measures the speed of answer of the Verizon call centers that serve CLECs. There are two types of these centers. The Telecom Industry Services Ordering Center (*TISOC*) handles CLEC calls for ordering, provisioning, and billing. It is located in Newark, NJ but could get calls coming in from other states as well. The TISOC hours of operation are 8 am to 6 pm Monday through Friday, excluding holidays. Verizon now calls the TISOC the NMC. The Regional CLEC Maintenance Center (*RCMC*) handles CLEC maintenance calls. It is open 24 hours per day, seven days per week. It serves the entire Verizon East region.

There are a total of four PO-3 sub-metrics. Two of them report on average speed of answer, and for these metrics there is no standard. Two metrics report on percent of calls answered within 20 seconds, and here the standard is that 85 percent be answered within 20 seconds. The formulas for the PO-3 sub-metrics are:

PO-3-01 – Average speed of answer – ordering

*(Sum of times from commencement to completion of answering interval for measured calls) / (Total number of measured calls answered by the center)*

PO-3-02 - % answered within 20 seconds – ordering

*(Total number of measured calls answered by the center within 20 seconds) / (Total number of measured calls answered by the center)*

PO-3-03 – Average speed of answer – repair

*(Sum of times from commencement to completion of answering interval for measured calls) / (Total number of measured calls answered by the center)*

PO-3-04 - % answered within 20 seconds – repair

*(Total number of measured calls answered by the center within 20 seconds) / (Total number of measured calls answered by the center)*

The Guidelines define the call-waiting interval that is being measured. For the TISOC, call intervals are measured as follows:

*(1) for a call placed by a CLEC representative to a Verizon call center's general access telephone number, the elapsed time from selection by a CLEC representative of a call direction option from the call management system menu that directs the CLEC call to a Verizon representative assigned to handling CLEC calls, until the CLEC call is answered by a Verizon representative; and (2) for a call initially placed by a CLEC representative to a Verizon call center representative assigned to that CLEC at the Verizon representative's direct dial line, but which is answered and forwarded to a call management system menu offering the options of transferring the call to the next available representative or to voice mail, the elapsed time from when the CLEC representative directs that his/her call be transferred from the menu to the next available Verizon representative or to voice mail, until the call is answered by a Verizon representative or by voice mail.*

For the RCMC, call intervals are measured as follows:

*The elapsed time from when a call by a CLEC representative enters the RCMC's call management system until the call is answered by a Verizon representative.*

The *Report Dimensions* section of the Guidelines states that “a Verizon call center may handle CLEC calls not only for New Jersey but also for other states.” In the case of the RCMC, this center actually handles calls for all of Verizon East (which includes all of the former Bell Atlantic and NYNEX states).

The exclusions that apply to these metrics are:

- Calls directed to and answered by Verizon representatives assigned to the calling CLEC
- Calls directed to voice mail when the voice mail system is not operating.

## 2. Analysis and Evaluation

Liberty selected PO-3-02 and PO-3-04 for detailed analysis. Liberty discusses the criteria for making these selections in section I.D of this report.

The basic source data needed to produce the metric results are: average wait time, number of offered calls, number of answered calls, and percent of offered calls answered in less than or equal to 20 seconds. All of these data come directly from the Pinnacle Automatic Call Distribution (ACD) system. Liberty reviewed the *Pinnacle Supervisor’s Reference Guide* to learn how the system calculates these data, and whether there were any exclusions made during the process.<sup>146</sup> The system produces two key daily reports. The *Daily Calls Answered Report* contains all of this information. These are the only reports used to produce the PO-3 ordering results.<sup>147</sup> The *Daily Queue Performance Report* contains the number of calls received and the number of calls answered. However, these reports do not include the exact same set of calls, although the difference is not great.

Liberty wanted to confirm the Pinnacle system’s calculation of average waiting time and therefore requested that Verizon provide the call waiting distribution for both order and repair calls for December 2002. Verizon responded that it did not have the capability to provide the data by one second intervals,<sup>148</sup> and Liberty was therefore unable to undertake that verification step.

Only the *Daily Calls Answered Report* is used to calculate the PO-3-01 and PO-3-02 ordering sub-metric results. Liberty obtained all of the ordering *Daily Calls Answered Reports* for the month of December 2002<sup>149</sup> and used them to recalculate the PO-3-01 and PO-3-02 sub-metric results. Liberty obtained the same results as those reported by Verizon.

Verizon uses both the *Daily Calls Answered Report* and the *Daily Queue Performance Report* to calculate the PO-3-03 and PO-3-04 repair results. The average wait time information and the data on percent of offered calls answered in less than or equal to 20 seconds are obtained from the *Daily Calls Answered Report*. The number of calls answered data and the number of calls offered data (which Verizon calculates by summing the number of answered calls plus abandoned calls plus busy calls) are obtained from the *Daily Queue Performance Report*. Liberty obtained all the repair *Daily Calls Answered Reports* and *Daily Queue Performance Reports* for the month of December 2002<sup>150</sup> in order to recalculate the PO-3-03 and PO-3-04 sub-metric results. When Liberty received the repair data for December 2002, the Verizon response noted that an ACD system coding problem (subsequently corrected) had resulted in the miscounting of the number of offered repair calls for several half-hour periods during the month, resulting in the need for Verizon to do a workaround to calculate the metric results. Liberty investigated to ensure that the December 2002 workaround was appropriate,<sup>151</sup> and that the problem did not

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<sup>146</sup> Response to Data Request #358.

<sup>147</sup> Response to Data Request #361.

<sup>148</sup> Response to Data Request #163 addendum.

<sup>149</sup> Response to Data Request #162.

<sup>150</sup> Response to Data Request #360.

<sup>151</sup> Interview #60, May 8, 2003.



affect any other months.<sup>152</sup> Liberty used the *Daily Calls Answered Reports* and *Daily Queue Performance Reports* for the month of December 2002 to recalculate the PO-3-03 and Po-3-04 results and, using Verizon’s workaround, obtained the same results as reported by Verizon.

Liberty requested Verizon’s PO-3 documentation to assess its completeness, accuracy, and clarity.<sup>153</sup> The documentation consists of bulleted items that constitute very brief procedures with no details for calculating the measure results. The documentation does not contain any overall description of the measure, its exclusions, the relevant hours of operation to be included, etc. The documentation for PO-3-01 and PO-3-02 states that the *Daily Incoming Calls Report* is required to produce the metric results but only the *Daily Calls Answered Report* is actually required.<sup>154</sup>

### 3. Findings and Recommendations

#### **There are inconsistencies between Verizon’s methods for calculating PO-3 and the Guidelines.**

Verizon excludes both abandoned and busy calls from this measure,<sup>155</sup> although the *Exclusions* section of the Guidelines does not note that. Abandoned calls are those where the caller hangs up before reaching a Verizon representative. Busy calls occur when a caller presses a key for an option from the call management system and gets a busy signal. In this case, the caller must place a new call to the center.

Although the *Performance Standard* section of the Guidelines lists the hours of operation of the Billing Center and the GUI Navigation Help Desk, the availability of those centers is not included in the measure.<sup>156</sup>

The Guidelines state that the interval being measured for the TISOC is: “....the elapsed time from selection by a CLEC representative of a call direction option from the call management system menu that directs the CLEC call to a Verizon representative assigned to handling CLEC calls, until the CLEC call is answered by a Verizon representative....” However, Liberty’s review of the *Pinnacle Supervisor’s Reference Guide* appeared to show that the interval actually begins when the call arrives at the switch. Liberty inquired about this apparent discrepancy, but Verizon’s response did not resolve it.<sup>157</sup>

Liberty recommends that Verizon request a change to the *Exclusions* section of the Guidelines to note that abandoned and busy calls are not included in the metric. It should also request a change to the description of the TISOC interval in the Guidelines to state that it begins when the call arrives at the switch (unless Verizon can clearly demonstrate that the existing description is correct).

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<sup>152</sup> Response to Data Request #558 supplement.

<sup>153</sup> Response to Data Request #6.

<sup>154</sup> Response to Data Request #361.

<sup>155</sup> Response to Data Request #554.

<sup>156</sup> Interview #30, March 10, 2003.

<sup>157</sup> Response to Data Request #630.

**The documentation for PO-3 is inadequate.**

The documentation for PO-3 does not include adequate information about the measures. It references the need for a report that Verizon does not actually use in developing the metric results.

Liberty recommends that Verizon strengthen its PO-3 documentation by adding an overall description of the measure, its exclusions, the relevant hours of operation to be included, etc. The documentation for PO-3-01 and PO-3-02 should not state that the *Daily Incoming Calls Report* is required to produce the metric results when it is not used.

**Verizon has not justified adequately its use of two different data sources for its PO-3-03 and PO-3-04 metric results calculations.**

Verizon uses only the *Daily Calls Answered Report* to calculate the PO-3-01 and PO-3-02 ordering sub-metric results, while it uses both that report and the *Daily Queue Performance Report* to calculate the PO-3-03 and PO-3-04 repair results. However, these two reports do not include the exact same set of calls. Thus, when Verizon uses them both to calculate a sub-metric result, it may introduce inaccuracies. Liberty asked Verizon to explain why it needed to use both types of reports for the repair sub-metrics, but the response was unclear and inadequate.<sup>158</sup>

Liberty recommends that, unless Verizon can provide a clear and reasonable justification for its current process, it should use only the *Daily Calls Answered Reports* to produce PO-3-03 and PO-3-04 sub-metric results. This would be consistent with Verizon’s process for calculating the PO-3-01 and PO-3-02 sub-metric results.

## **E. PO-4, Timeliness of Change Management**

### **1. Background**

The metrics within PO-4 report on timeliness of change management notices (which schedule interface-affecting software or documentation changes) and timeliness of change management confirmations (which confirm that Verizon made final its documentation). For change management notices, the metrics measure the interval between the time the notification is sent and the implementation of the change. Some change management notices affect only business rules, some affect technical specifications, and some affect both. For change management confirmations, the metrics measure the interval between the time the confirmation was sent and the implementation of the change.

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<sup>158</sup> Interview #60, May 8, 2003, and response to Data Request #669.

There are three sub-metrics within PO-4, and two of them are included in the Verizon IP. For the period November 2001 through January 2003, the PO-4 metrics resulted in \$30,000 of incentive payments by Verizon.<sup>159</sup>

The Guidelines show that there are five different types of changes. The five types and their timeliness standards are:

Change type	Change management notice standard interval	Change management confirmation standard interval
5. CLEC originated	73 days for business rules, 66 days for technical specs.	45 days
4. Verizon originated	73 days for business rules, 66 days for technical specs.	45 days
3. Industry standard	73 days for business rules, 66 days for technical specs.	45 days
2. Regulatory	Time period in regulatory order or, if none, time period immediately above.	Time period in regulatory order or, if none, time period immediately above.
1. Emergency maintenance	Notification before implementation.	Not applicable

All of the PO-4 metrics report results for all five of the change types combined. Each of the three sub-metric’s results combines change management notice results with change management confirmation results.

The formulas for the PO-4 sub-metrics are:

PO-4-01 - % Change management notices and change management confirmations sent on time

*(Number of change management notices and change management confirmations complying with minimum notice intervals) / (Total number of change management notices and change management confirmations)*

The standard for PO-4-01 is 95 percent.

PO-4-02 - Change management notices and change management confirmations – Delay 1 to 7 days

*Cumulative delay days for all notices and confirmations sent 1 to 7 days late.*

PO-4-02 has no standard.

PO-4-03 - Change management notices and change management confirmations – Delay 8 or more days

<sup>159</sup> Incentive Payment reports provided to Liberty by the Board’s Staff.

*Cumulative delay days for all notices and confirmations sent 8 or more days late.*

The standard for PO-4-03 is 0.

The only exclusions in the Guidelines that apply to PO-4 are for change management notices and change management confirmations for which Verizon and the CLECs agreed to a shorter interval than that stated in the Standards.

## 2. Analysis and Evaluation

Liberty requested that Verizon provide a list of all interfaces covered by PO-4. Verizon responded with the following information:<sup>160</sup>

No.	Domain	Interface	Description
1	PO, OR	EDI	CLEC interface to VZ applications
2	PO	CORBA	CLEC interface to VZ applications
3	PO, OR	LSI	CLEC interface to VZ applications
4	MR	RETAS	Repair Trouble Analysis application. Available through LSI.
5	OR	CSG	Carrier Services Gateway is LSI equivalent for ASRs
6	BI	BOS/BDT	NY/NE Bill of record provided by VZ to CLECs.
7	BI	DUF	Daily Usage File itemizing the BDT summary info. Plan of record.
8	PR	WPTS	Web-based application allowing CLEC to view hot cut orders, facilities including cable/pair/port assignments, and to communicate with the RCCC.
9	Report	Line Loss Report	Line Loss Report provides listing of lines that have moved to another local service provider.
10	Inquiry tool	Notifier Status	VZ status notification to CLECs regarding provisioning, error notification, billing.
11	Report	LVR Report	Listing Verification Report Allows CLEC to verify changes to Directory Listings are correct.

This list is essentially the same as that used by Verizon to determine whether a Change Management Notice or Change Management Confirmation is eligible for inclusion in PO-4. If the Notice or Confirmation relates to one of the above interfaces, then Verizon considers it to be a candidate for inclusion. Otherwise Verizon excludes it.<sup>161</sup>

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<sup>160</sup> Response to Data Request #73.

<sup>161</sup> Response to Data Request #165, Attachment 1.

In addition to this exclusion, and the one listed in the Guidelines for PO-4, Verizon uses two other criteria in determining candidacy for inclusion in PO-4. To be included in PO-4 by Verizon, the change underlying the Notice or Confirmation must be such that it:<sup>162</sup>

*Has material impact to CLEC, involving elimination of or changes to existing functionality of the interface itself or its business rule or technical spec documentation. Changes involving significant process impact to the CLEC would also be subject to PO-4.*

and it:

*Includes relevant documentation, as appropriate for the particular change. Changes that involve business rule change require business rule documentation. Changes that involve programming changes require technical specification documentation. Changes that involve both require both forms of documentation. Documentation may be as brief or lengthy as is appropriate to the change, and may be incorporated directly to the notice or by reference to external materials.*

It should be borne in mind that the PO-4 reporting does not consider Change Management Notices or Confirmations that Verizon should have sent to the CLECs but did not. Rather, it only measures the timeliness of the Notices and Confirmations that Verizon actually sent.

Verizon sends Change Management Notices together with **draft** business rules or draft technical specifications, while it sends Change Management Confirmations together with the **final** documentation. The Guidelines do not specifically state this. However, Liberty reviewed samples of all types of Change Management Notices and Change Management Confirmations<sup>163</sup> and noted that they clearly state whether they are transmitting draft documentation or final documentation. Liberty also requested and reviewed a sample set of business rules (e.g., how to construct an LSR) and a sample set of technical specifications (e.g., how to implement an EDI transaction) that were covered by change management notices sent out during December 2002.<sup>164</sup>

The only PO-4 exclusion in the Guidelines is for change management notices and change management confirmations for which Verizon and the CLECs agreed to a shorter interval than that stated in the Standards. Liberty confirmed that for December 2002 there were no change management notices or change management confirmations for which Verizon and the CLECs agreed to a shorter interval than that stated in the Standards.<sup>165</sup>

To calculate the PO-4 results, Verizon first identifies all of the Notices and Confirmations required by the Change Management Process and those that were actually distributed. Verizon compiles this list from the Items by Release Report, the Change Request Reference Database, and the Wholesale Market Database. Verizon then applies its four exclusions to this set of Notices and Confirmations, and enters the Notices and Confirmations that it did not exclude into a Metric Detail spreadsheet. Notices that Verizon excluded are sometimes also entered (although

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<sup>162</sup> Response to Data Request #165, Attachment 1.

<sup>163</sup> Response to Data Request #50.

<sup>164</sup> Response to Data Request #74.

<sup>165</sup> Response to Data Request #72.

with NA in the calculation fields). Verizon then determines if it transmitted the Notices and Confirmations on time by comparing the transmission dates and the implementation dates. Finally, Verizon performs arithmetic calculations to develop the PO-4 sub-metric results.

Liberty noted that the Metric Business Rules for PO-4 used a “commitment date” where Liberty would have expected an implementation date to be used. Liberty confirmed with Verizon that although the field is called “commitment date” or “commit\_date” it does in fact represent the implementation date.<sup>166</sup>

Verizon transmits all change management notice and change management confirmation documents to the CLECs via e-mail using Lotus Notes. There are two CLEC lists, but the transmissions happen within minutes of each other.<sup>167</sup>

Liberty investigated the situation in which Verizon revises the business rules or technical specifications after issuing a Change Management Confirmation but before implementation of the change. Verizon responded that in this case they would discuss the situation with the CLECs. If the CLECs agreed to a shorter notification interval, then that PO-4 exclusion would apply. Otherwise, Verizon would report the Change Management Confirmation as a “miss” in PO-4. Verizon stated that this situation has not occurred in the last 12 months.<sup>168</sup>

The December 2002 performance report shows that there were 31 observations for this measure, and that all of them met the standard. Liberty obtained the source data for the PO-4 sub-metrics for December 2002.<sup>169</sup> Liberty then confirmed that the raw data spreadsheet provided to Liberty yielded the 31 observations shown in the December 2002 performance report, and that Verizon had sent all of the Notices and Confirmations within the required time intervals.

Liberty evaluated Verizon’s PO-4 documentation to assess its completeness, accuracy, and clarity and found that it was adequate.<sup>170</sup> The documentation states that there are six steps in calculating the PO-4 metric results, but it only lists and discusses five. Liberty believes that this is just a typographical error and that only the five steps are required.

### **3. Findings and Recommendations**

#### **Verizon is making additional PO-4 exclusions beyond the one listed in the Guidelines.**

The only exclusion in the Guidelines is for Change Management Notices and Change Management Confirmations for which Verizon and the CLECs agreed to a shorter interval than that stated in the Standards. However, as noted above Verizon is making three other exclusions as well, one for changes that do not relate to its list of interfaces, another for changes that do not

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<sup>166</sup> Response to Data Request #52.

<sup>167</sup> Interview #16, February 7, 2003.

<sup>168</sup> Response to Data Request #75.

<sup>169</sup> Response to Data Request #165.

<sup>170</sup> Response to Data Request #165, Attachment 1.

materially impact the CLECs, and a third for Notices or Confirmations that do not include relevant documentation as appropriate for the particular change. In addition to not being listed in the Guidelines, these additional exclusions introduce subjectivity into the process, *e.g.*, the decision as to whether a change has “material impact.”

Liberty recommends that all relevant parties determine whether the Guidelines should be revised to include these three additional exclusions. If not, Verizon should stop making them.

## **F. PO-5, Average Notification of Interface Outage**

### **1. Background**

Metric PO-5 measures the average interval of time between Verizon’s identification of an OSS interface outage and Verizon’s notification to CLECs that the outage exists. These OSS interfaces may handle CLEC transactions from other states besides New Jersey. The Guidelines require Verizon to notify affected CLECs by electronic mail.

There is only one PO-5 metric, PO-5-01. This metric is included in Verizon’s IP, but there were no incentive plan payments associated with it during the period November 2001 through January 2003. The Guidelines state that there are no exclusions for this metric, and Verizon reports it for all CLECs in aggregate and for individual CLECs.

PO-5-01 reports on the EDI pre-ordering, Web GUI pre-ordering, CORBA pre-ordering, Web GUI maintenance, and Electronic Bonding maintenance interfaces, all combined into one performance result.

The formula for PO-5-01 is:

*(Sum of date and time of outage notification to CLECs less date and time interface outage was identified by Verizon) / (Total number of interface outages for which notice was given)*

The performance standards require Verizon to notify CLECs via electronic mail within 20 minutes of identification of the outage.

### **2. Analysis and Evaluation**

Verizon’s Wholesale Customer Care Center (WCCC) sends interface outage notices. If outages are not brought to the attention of the WCCC, then no notices will be sent out and the outage will not be included in PO-5. Both CLEC representatives and Verizon personnel may bring outages to the attention of the WCCC. The WCCC then initiates a cross-functional conference call to discuss the outage. At some point during this call, the outage may be “confirmed.” This is the time that Verizon uses to begin measuring the interval for PO-5 reporting purposes. (Thus, the time the outage was initially identified, the time the trouble ticket was opened about the outage,

and the time the WCCC was finally notified about the outage do not determine Verizon’s start time.) When the WCCC prepares an outage notice, the notice includes an estimated notification time. The end time used for PO-5 is this estimated notification time, not the time when the notice was actually distributed to the CLEC community. WCCC sends the notices via electronic mail.

WCCC employees manually enter the interface outage notice information (including the trouble ticket number, the start time, and the end time) into the NMP system. The system then performs the arithmetic calculations to determine the PO-5 results.

Liberty investigated the situation when two or more interfaces are experiencing outages at the same time. Verizon stated that in this case, which does occur, it lists all affected interfaces on one notice, and reflects that single notice in PO-5 as appropriate.<sup>171</sup>

Liberty requested all source data for January 2003 because that month included outage notices and thus the January 2003 performance report had non-zero results for PO-5.<sup>172</sup> There were two outage notices included in that month and, using Verizon’s definitions of start and stop time, Liberty obtained the same results reported by Verizon. Liberty also requested every interface outage trouble ticket opened in January 2003 to see if Verizon excluded some trouble tickets from PO-5 and learned that Verizon had excluded none.<sup>173</sup>

### 3. Findings and Recommendations

**The definition of the denominator of PO-5 gives Verizon considerable flexibility over the outages it includes in the measure.**

The denominator for PO-5 in the Guidelines is:

*Total number of interface outages for which notice was given.*

Because of this definition, Verizon could exclude any outage simply by not providing notice about it.

Although not noted in the Guidelines, Verizon only includes in PO-5 those outages that someone brings to the attention of the WCCC, which is the organization that sends out outage notices. In particular, Verizon’s EnView system sometimes identifies outages of short duration which are not reported to the WCCC so that notice is not given about them and they are not included in the measure. Verizon believes that not sending out notices about these short EnView outages and excluding them from PO-5 is acceptable because the outage would often be over by the time the CLECs received the notice.<sup>174</sup> It is not uncommon for EnView to identify a short duration outage that is not reported to the WCCC.<sup>175</sup>

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<sup>171</sup> Response to Data Request #298.

<sup>172</sup> Response to Data Request #167.

<sup>173</sup> Response to Data Request #297.

<sup>174</sup> Response to Data Request #296.

<sup>175</sup> Response to Data Request #166.



**Verizon is making an exclusion to PO-5 although the Guidelines do not list any.**

Verizon excludes from PO-5 those outages that it has planned ahead of time and given notice about, although the Guidelines do not list this exclusion. Verizon considers these situations to be planned downtime rather than outages. However, Liberty noted that Verizon included a planned outage in the PO-5 results for January 2003. According to Verizon, this outage was included at the request of Regulatory. Verizon stated that it was included because the notice interval given to the CLECs was so short. Because Verizon sent out the outage notice before the outage began, its notice interval was zero. Including this outage in the metric served to cut the average notice interval reported for PO-5 for January 2003 in half.

In addition, Verizon does not send out notices for short duration outages and therefore they are not included in PO-5. Verizon justifies not sending out notices in these situations because Verizon’s *Wholesale Network Services OSS Interface Change Management Process* document stipulates that outages of less than 20 minutes do not require notices.<sup>176</sup> However, Verizon itself agrees that this document does not govern the calculation of performance results or incentive plan payments.<sup>177</sup>

It seems reasonable to Liberty to exclude both planned downtime and short outages from the PO-5 calculation, but all parties should agree to this, and it should be noted in the Guidelines.

**Verizon’s process for determining when an interface outage has begun is too subjective for PO-5.**

When someone reports an outage to the WCCC, Verizon holds a cross-functional conference call to discuss it. At some time during this call, the outage is “confirmed.” That is the “start” time that Verizon uses to measure the notification interval for the outage. For example, during January 2003, a CLEC called in an outage at 11:11 am. The trouble ticket Verizon created showed 11:11 am as the “downtime” for the interface. At 11:40 am, a Verizon employee confirmed that the ECORBA 2 box was down. However, it was not until 11:50 am that the cross-functional team decided that they had “confirmed” the outage. This confirmation time of 11:50 am was also the time that the problem was resolved and the interface was restored, *i.e.*, the outage was **confirmed** by Verizon at the exact time it was **over**, almost 40 minutes after it was called in by a CLEC representative.<sup>178</sup> Verizon sent the notice to the CLECs at 12:10 pm, 20 minutes after this “confirmation.” Thus, Verizon exactly satisfied the 20-minute performance standard for the outage.

There has never been a month in which Verizon failed to meet the performance standard for PO-5. In fact, Liberty notes that there has never been **any** interface outage included in PO-5 for

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<sup>176</sup> Response to Data Request #296.

<sup>177</sup> Response to Data Request #480.

<sup>178</sup> Response to Data Request #485.

which the time between the identification of the outage and the outage notification was greater than 20 minutes.<sup>179</sup>

In addition, Verizon is violating its own procedures regarding the timing of outage notifications it sends out. Verizon’s *Wholesale Network Services OSS Interface Change Management Process* document<sup>180</sup> states that:

*Within 20 minutes of the TC reporting the system outage to the WCCC, when the incident is related to connectivity, or within 1 hour when the incident is related to transaction processing, the WCCC sends a System Outage Bulletin (see sample – appendix B).*

However, Verizon only attempts to send its notices out within 20 minutes of when it has “confirmed” the outage, and this will virtually always be after the CLEC (termed the TC in the quote immediately above) has reported the outage to the WCCC. From this, Liberty concludes that Verizon is violating its own procedures and reporting interface outage notification intervals that are shorter than they would be if it were following its procedures. Liberty submitted data requests that provided Verizon an opportunity to explain this inconsistency, but Verizon chose not to offer any such explanation.<sup>181</sup>

Unless a specific situation arises for which Verizon can positively demonstrate that it is inappropriate to do so, it should take the outage start time as the system down time reported by the CLEC representative or the Verizon employee, not the time Verizon has finally confirmed the outage. Of course, Verizon should still confirm that the outage did actually occur before including it in the metric results. Following this recommendation will bring Verizon into compliance with its own procedures.

**Verizon does not use the actual time it sends out notices when calculating intervals for PO-5.**

When Verizon prepares an outage notification to send to the CLECs, it includes both the outage identification time (as explained above) and an estimated notification time (*i.e.*, an estimate of the time when the notice will be e-mailed to the CLECs). Verizon uses this estimated notification time as the “end time” in calculating the interval for PO-5, not the actual time it sends out the notice (which could be earlier or later than the estimated notification time).

Liberty recommends that Verizon use the actual time it sends out the notice when calculating intervals for PO-5.

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<sup>179</sup> Response to Data Request #484.

<sup>180</sup> Response to Data Request #6.

<sup>181</sup> Responses to Data Requests #804 and #805.

**Verizon has no documented policies, procedures, or guidelines that govern how the PO-5 metric results are to be developed and calculated.**

Liberty requested that Verizon provide all policies, procedures, guidelines, handbooks, flow diagrams, technical documentation, or other documents that are related to the determination and reporting of performance measures in the Pre-Ordering category. The response included no documentation for PO-5.<sup>182</sup>

Liberty recommends that Verizon develop and document detailed methods and procedures for the calculation and reporting of PO-5.

## **G. PO-6, Software Validation**

### **1. Background**

Verizon uses test decks of transactions (termed Quality Baseline Validation Test Decks or Regression Test Decks) to validate the functionality of its non-emergency software releases. Verizon assigns each transaction in the test decks a weight factor, which Verizon allocates among transaction types (*e.g.*, pre-order) and then distributes across specific transactions within a transaction type. Appendix N to the Guidelines contains the test deck weightings. Verizon maintains two versions of the Local Service Ordering Guide (LSOG) preorder and order interface software, and it therefore has two test decks, one for each version.

Four weeks prior to a CLEC-impacting software release, Verizon loads code for that release into the CLEC Test Environment (CTE). CLECs may begin new release testing on the Monday four weeks before release implementation. The CTE becomes unavailable for CLEC new release testing the Friday before release implementation. The Guidelines for PO-6 state that, within one business day following a non-emergency software release to production as communicated through Change Management, Verizon will execute the Quality Baseline Validation Test Decks in production using training mode. After completing the test, Verizon reports on the test deck transactions that failed. A failed transaction occurs when a request cannot be submitted or processed, or results in incorrect or improperly formatted data.

There is only one PO-6 metric, PO-6-01. This metric is included in Verizon’s IP, but there were no incentive plan payments associated with it during the period November 2001 through January 2003.

The formula for PO-6-01 is:

*(Sum of weights of failed transactions) / (Sum of weights of all transactions in the test deck)*

The only exclusion for PO-6-01 is for emergency software releases. The performance standards are that not more than 5 percent of the test deck transactions may result in failure.

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<sup>182</sup> Response to Data Request #6.

## 2. Analysis and Evaluation

Verizon includes in its test decks those transactions it considers most important to CLECs.<sup>183</sup> Liberty requested and reviewed the test deck Verizon currently uses.<sup>184</sup>

Verizon excludes emergency software releases from PO-6. Liberty investigated a recent Verizon emergency software release, which was in January 2003, to insure that it was indeed an emergency release.<sup>185</sup> Liberty confirmed that the release was responding to an emergency situation and that it was not included in the PO-6 metric results.

Verizon packages most of its CLEC-affecting software changes and implements them three times per year, in February, June, and October. Therefore, Verizon only reports on PO-6 three times per year. When Verizon plans to release new software, the software is first made available for CLEC (and Verizon) testing for four weeks in a pre-release environment. When the pre-release period is over, Verizon makes the relevant system(s) unavailable to the CLECs for a period of time (the “window”) during which it installs the new software. When the window period is over, the CLECs can again use the system(s) and the new software is in production.

The Guidelines state that:

*The test deck will be executed as follows: Within one business day following a non-emergency software release to production as communicated through Change Management, Verizon will begin to execute the test deck in production using training mode. Upon completion of the test, Verizon will report the test deck transactions that failed.*

Verizon’s actual procedure is as follows. During the “window” period, which is before release to production, Verizon will run the test deck one or more times. If one of those runs is successful, then Verizon will report in PO-6 that there were no failed transactions associated with the software release. If each of those runs results in one or more failed transactions, then Verizon will run the test deck again during the first business day that the software is in production, and it will report in PO-6 the results from this test. If a transaction in the test deck fails because of a problem with the test deck or the data against which it is run, then Verizon corrects the problem and runs the test deck again, *i.e.*, it does not consider that to be a failed transaction. To date, it appears that Verizon has never reported any failed transactions in PO-6.

The Wholesale Integration Testing Group (WIT) records the test results for each test deck transaction, performs the arithmetic to calculate the PO-6 results, and inputs the results to the data provider. Verizon moved PO-6 to NMP in December 2002 and WIT now enters the results directly into NMP.

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<sup>183</sup> Response to Data Request #304.

<sup>184</sup> Response to Data Request #169.

<sup>185</sup> Response to Data Request #174.

Liberty requested the source data and worksheets for the most recent month that had reported PO-6 results.<sup>186</sup> That month was October 2002, whose reported results were 0.00. Liberty reviewed the spreadsheets containing the results of each test transaction and confirmed that all of the transactions had completed (*i.e.*, passed) for both the LSOG4 and LSOG5 test decks. This yields the reported result of 0.00.

Liberty requested that Verizon provide all policies, procedures, guidelines, handbooks, flow diagrams, technical documentation, or other documents that are related to the determination and reporting of performance measures in the Pre-Ordering category. The response included no documentation for PO-6.<sup>187</sup>

### **3. Findings and Recommendations**

**Verizon has essentially no documented policies, procedures or guidelines that govern how the PO-6 metric results are to be developed and calculated.**

Liberty recommends that Verizon develop and document detailed methods and procedures for the calculation and reporting of PO-6.

**Verizon is making an exclusion to PO-6 that the Guidelines do not list.**

The only exclusion listed in the Guidelines for PO-6 is emergency software releases. However, minor non-emergency CLEC-affecting software releases, for which Verizon apparently does not use the test decks, can occur at any time during the year, and these are not included in PO-6 results. Liberty requested a list of all such minor non-emergency software releases not reflected in PO-6 but that would have been included in it if they had been major.<sup>188</sup> For 2002, there were such releases in each of the nine months that did not include Verizon’s regular major releases.

Assuming all parties agree to continue excluding these minor releases, Verizon should request a revision to the Guidelines to note that it excludes minor releases.

## **H. PO-7, Software Problem Resolution Timeliness**

### **1. Background**

The metrics within PO-7 report the timeliness of resolving software problems. More specifically, PO-7 measures Verizon’s resolution of “Production Referrals,” which are failed pre-order and order transactions reported by CLECs to the Help Desk (now termed the Wholesale Customer Care Center) or identified by Verizon by execution of the test deck that were caused by Verizon code or documentation errors or omissions in non-emergency software releases and that result in

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<sup>186</sup> Response to Data Request #170.

<sup>187</sup> Response to Data Request #6.

<sup>188</sup> Data Request #302.

Type 1 changes.<sup>189</sup> A transaction has failed if a request cannot be submitted or processed, or the request results in incorrect or improperly formatted data. A Production Referral is resolved when a change is implemented that corrects the Verizon code or documentation error or omission.

The only Production Referrals included in PO-7 are those reported by a CLEC to the Help Desk or those identified by Verizon through the Help Desk. To be included in PO-7, a measured Production Referral must occur within 30 calendar days following implementation of the non-emergency software release that contained the code or documentation error or omission.

There are four PO-7 sub-metrics. Only one of them, PO-7-01, is included in the Verizon IP, although there were no incentive plan payments associated with it during the period November 2001 through January 2003.

The *Exclusions* section of the Guidelines notes that:

- Failed pre-order and order transactions reported by a CLEC to the Help Desk, or identified by Verizon by execution of the test deck, between 6:00 PM on Friday and 9:00 AM on Monday will be treated as received at 9:00 AM Monday.
- Failed pre-order and order transactions reported by a CLEC to the Help Desk, or identified by Verizon by execution of the test deck, between 6:00 PM of the business day preceding a holiday and 9:00 AM of the first business day following the holiday will be treated as received at 9:00 AM on the first business day following the holiday.

Verizon measures the timeliness standards for PO-7 starting from the time of the referral by the CLEC to the Help Desk or the time Verizon identified the problem by executing the test deck. If the transaction has failed and there is no workaround, then the problem must be resolved within 48 hours. If the transaction has failed and there is a workaround, then the problem must be resolved within 10 calendar days.

The formulas for the PO-7 sub-metrics are as follows:

PO-7-01 - % Software Problem Resolution Timeliness

*(Number of Production Referrals resolved within timeliness standard) / (Total number production referrals)*

The standard for PO-7-01 is 95 percent.

PO-7-02 - Delay Hours – Software Resolution – Change – Transactions failed, no workaround

*Number of cumulative delay hours (i.e., beyond the 48-hour standard) for identified software resolution changes associated with pre-order/order failures with no workaround*

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<sup>189</sup> New Jersey Carrier-to-Carrier Guidelines Performance Standards and Reports, Page 18.

PO-7-02 has no standard.

PO-7-03 - Delay Days – Software Resolution – Change – Transactions failed with workaround

*Number of cumulative delay days (i.e., beyond the 10-calendar day standard) for identified software resolution changes associated with pre-order/order failures with a workaround*

PO-7-03 has no standard.

PO-7-04 - Delay Hours – Failed/Rejected Test Deck Transactions – Transactions failed, no workaround

*Number of cumulative delay hours (i.e., beyond the 48-hour standard) for software resolution changes associated with pre-order/order failures with no workaround for Test Deck transactions*

PO-7-04 has no standard.

## **2. Analysis and Evaluation**

There is an exclusion for the PO-7 metrics that the *Exclusions* section of the Guidelines does not mention. The *Definition* section of the Guidelines mentions “implementation of the non-emergency software release,” and this means that Verizon only applies PO-7 in non-emergency situations.

The *Definition* section of the Guidelines for PO-7 states that a failed transaction must have been “caused by Verizon code or documentation errors or omissions in non-emergency software releases.” Verizon takes this phrase very literally. For example, one of the failed production referrals from October 2002 did match a test deck scenario, but the transaction failed because of a problem with a Verizon table, rather than with Verizon’s actual code or documentation. Thus, Verizon excluded this transaction from PO-7.

The *Definition* section of the Guidelines specifies that only production referrals submitted within 30 days of implementation of the software release are included in PO-7. Thus, unlike other measures, the data Verizon reports for PO-7 are for a 30-day period that will not usually correspond to any actual month.

The *Definition* section of the Guidelines specifies that production referrals must “result in Type 1 changes” to be counted in PO-7. Liberty learned that, in practice, every production referral results in a Type 1 change or in no change at all.<sup>190</sup>

PO-7 calculations require determining the interval from identification of the problem to fixing it. The start time for the interval is when the CLEC calls the production referral in to the Verizon

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<sup>190</sup> Interview #33, March 4, 2003.

Help Desk or when Verizon identifies the problem using the Test Deck. The end time for the interval is when Verizon has fixed the software problem or made the corrected documentation available to the CLECs.<sup>191</sup> Verizon measures this interval in calendar days/hours (but still taking into account the exclusions for weekends and holidays).<sup>192</sup>

The two sources of production referrals listed in the Guidelines for PO-7 are CLEC reports of failed transactions and failed transactions resulting from Verizon’s application of the test deck. (The previous section of this report on PO-6 contains a description of the test deck and how it is used.) Verizon’s interpretation of the *Definition* section of the Guidelines for PO-7 is that a CLEC production referral is only a candidate for inclusion in PO-7 if it is sufficiently similar to a test deck scenario. Thus, when a CLEC submits a production referral, the WCCC passes it on to the CLEC Test Environment (CTE) group within Verizon. CTE then reviews the CLEC transaction that failed. If CTE decides that the failed transaction is sufficiently similar to one of the test deck scenarios, then that production referral would be a candidate for inclusion in PO-7. Otherwise it would only be a candidate if a Verizon documentation problem or omission was the cause.

No PO-7 sub-metric has ever had any performance result other than “NA” (no activity).<sup>193</sup> Nonetheless, Verizon does believe that situations could arise when PO-7 would have a result other than “NA.” One way would be a Verizon documentation error or omission. The other way, a code problem, would require a CLEC transaction that was similar in all “major options” to a test deck transaction but that differed from it in some minor respect (*e.g.*, an order that matched a test deck scenario except for the features ordered, like call waiting) and yet failed because of this minor difference.<sup>194</sup> Liberty has no way of knowing whether this hypothetical situation could actually occur.

For October 2002, the most recent month in which Verizon reported PO-7 results, there were 1,453 Production referrals that were candidates for inclusion in PO-7.<sup>195</sup> Verizon excluded 17 of these because it determined that the failure was not caused by Verizon code or documentation errors/omissions, and excluded the remaining 1,436 because CTE concluded that they were not sufficiently similar to a test deck transaction. Thus, Verizon reported the PO-7 result for October 2002 as “NA” (no activity). Liberty investigated all 17 of the transactions excluded because the failure was not caused by code or documentation problems.<sup>196</sup> Most of them were excluded because CLECs submitted them using Web GUI. Verizon’s test decks do not test Web GUI transactions. Because Verizon believes that a production referral must “match” a test deck scenario, Verizon will never consider a failed Web GUI transaction to be a production referral.

Liberty investigated some of the 1,436 transactions excluded in October 2002 because they did not “match” any test deck scenario. Among them was one which sought to make a PIC change and also change blocking options. While Verizon has a test deck scenario for a PIC change and

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<sup>191</sup> Interview #33, March 4, 2003.

<sup>192</sup> Response to Data Request #181.

<sup>193</sup> Response to Data Request #481.

<sup>194</sup> Response to Data Request #482.

<sup>195</sup> Response to Data Request #178.

<sup>196</sup> Response to Data Request #308 and Interview #46, April 7, 2003.



another for a blocking option change, it does not have one that includes both changes. Verizon concluded that this referral was not sufficiently similar to a test deck scenario and therefore excluded it. Another of the excluded transactions was related to an order for a stand-alone directory listing. Verizon excluded it because it does not have a stand-alone directory listing among its test deck scenarios.<sup>197</sup>

Verizon provided documentation governing how it determines the severity of a trouble<sup>198</sup> and how it decides if a trouble has a workaround or not.<sup>199</sup> Verizon also provided documentation related to determining whether a failed transaction was tested in the test deck.<sup>200</sup> However, Verizon provided no other documentation governing the data sources and calculation processes for determining PO-7 results.<sup>201</sup>

### 3. Findings and Recommendations

#### **Verizon has an unusual interpretation of the *Definition* section of the Guidelines for PO-7.**

The *Definition* section of the Guidelines for PO-7 states:

*This metric measures Verizon’s resolution of “Production referrals.”  
“Production Referrals” are failed pre-order and order transactions reported by  
CLECs to the Help desk or identified by Verizon by execution of the test deck,.....*

Verizon interprets this to mean that any production referral, **whether from a CLEC or Verizon**, must be linked to one of the transaction types in the test deck. Given Verizon’s interpretation of the Guidelines, the specific scenarios it includes in its test decks are of paramount significance to the measure.

Although not noted explicitly anywhere in the Guidelines, Verizon does not include Web GUI (now called LSI) failed transaction referrals in PO-7. Verizon’s reason for this is that the Verizon test decks only address EDI and CORBA transactions, and Verizon believes that a failed transaction must be related to a test deck transaction to be a candidate for inclusion in PO-7.

Liberty recommends that all parties determine if Verizon’s interpretation of the PO-7 definition in the Guidelines is appropriate. If not, Verizon should modify its PO-7 calculation processes to bring them into line with the agreed-upon interpretation of the Guidelines for PO-7.

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<sup>197</sup> Response to Data Request #310, and Interviews #43 and #46, April 7, 2003.

<sup>198</sup> Response to Data Request #177.

<sup>199</sup> Response to Data Request #182.

<sup>200</sup> Response to Data Request 307.

<sup>201</sup> Response to Data Request #6.

**The Guidelines for PO-7 have a minor omission.**

Verizon told Liberty that when a production referral has a workaround, Verizon is required to provide that workaround within 48 hours, in addition to providing the permanent fix within 10 days.<sup>202</sup> However, the Guidelines do not mention the requirement to provide the workaround within 48 hours.

If all parties agree that this is a requirement, Liberty recommends that Verizon request a change to the Guidelines to include it.

**Verizon has only one documented policy, procedure, or guideline that governs one aspect of how the PO-7 metric results are to be developed and calculated, and this document is flawed and incomplete.**

The only procedural document Verizon has regarding the PO-7 calculation process addresses the very significant issue of determining if a failed transaction “matches” a test deck transaction.<sup>203</sup> Such procedures are important to minimize the subjectivity involved in determining whether there is a “match.” However, Verizon’s procedural document is highly flawed. First, the document contains the following biased requirement:

*CTE is needed to determine that the scenario being performed and reported by the CLEC **was not part of** (emphasis added) the CTE Test Deck.*

While that is exactly what CTE has done for every failed transaction ever submitted to it, Liberty believes the job of CTE should be to decide objectively whether there is a “match,” not solely to search for a reason why there was not one. Second, the document sheds no light on how to decide if there is such a “match.” The only part of the document relevant to this decision states that:

*If the CTE specialist determines that the PON is identical in all major options to a scenario in the Test Deck, ..... ”*

Thus, the document simply uses the words “identical in all major options” instead of “matches” without providing any additional guidance to the Verizon employee making the decision.

Liberty recommends that Verizon rewrite this document in an unbiased manner, and that it provide detailed and specific guidance in determining when a failed transaction “matches” the test deck. Examples of transactions that do and that do not “match” should be included. Liberty confirmed that Verizon has no materials for training employees on how to decide if there is a “match.”<sup>204</sup>

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<sup>202</sup> Response to Data Request #305.

<sup>203</sup> Response to Data Request #307.

<sup>204</sup> Response to Data Request #552.

Furthermore, Liberty recommends that Verizon develop and document procedures covering all steps required for it to calculate and report PO-7 results.

## **I. PO-8, Manual Loop Qualification**

### **1. Background**

The two sub-metrics within PO-8 report on Verizon's timeliness in providing manual loop qualification information (when the required information is not available in Verizon's electronic database) and in providing engineering record information. Both of these sub-metrics are included in Verizon's IP. During the period November 2001 through January 2003, PO-8-01 resulted in \$521 in incentive payments, and PO-8-02 did not result in any incentive payments. Verizon reports PO-8 for CLECs in aggregate and for CLEC specific. Verizon reports both metrics on a statewide basis.

The exclusions for the PO-8 sub-metrics are:

- Weekend hours, from 5:00 pm Friday to 8:00 am Monday
- Holiday hours, from 5:00 pm of the business day preceding the holiday to 8:00 am of the first business day following the holiday.

The formulas for the PO-8 sub-metrics are:

PO-8-01 - % on time – Manual loop qualification

*(Count of manual loop qualification requests where the time from receipt of request for manual loop qualification to distribution of loop-qualification information is less than or equal to 72 hours) / (Number of manual loop qualification transactions)*

The standard for PO-8-01 is 95 percent within 72 hours during an interim phase, and 95 percent within 48 hours when Verizon has implemented the permanent solution.

PO-8-02 - % on time – Engineering record request

*(Count of engineering record requests where the time from receipt of engineering record request to distribution of engineering record is less than or equal to 72 hours) / (Number of engineering record request transactions)*

The standard for PO-8-02 is 95 percent.

### **2. Analysis and Evaluation**

A CLEC can submit, using a pre-order loop qualification transaction, a **basic** loop qualification request to learn if the loop is qualified for the service the CLEC wishes to provide (e.g., xDSL).

PO-1-06 measures the response time for these basic loop qualification requests. A CLEC can also submit, via EDI, Web GUI, or CORBA, an **extended** loop qualification request, in which case the CLEC is informed that the response will take 48 hours. PO-8-01 measures the actual time required to provide the response.

PO-8-02 has never had any activity.<sup>205</sup>

Liberty noted that the December 2002 performance report showed a standard for PO-8-01 of 95 percent within 72 hours, and Liberty therefore submitted data requests to inquire when Verizon would implement the permanent solution.<sup>206</sup> Verizon responded on February 27, 2003, that it reported on the permanent solution beginning with February 2002 and that the template was incorrect in showing the 72-hour standard. Verizon then issued Change Control #CCNJ2003-08252 on March 27, 2003, noting that an internal Verizon review had identified a problem with the PO-8 template that it would correct with the March 2003 data month.

Liberty confirmed that Verizon measures the 48- and 72-hour standards in the Guidelines for PO-8 in calendar hours (excluding weekends and holidays).<sup>207</sup>

PO-8-01 has been in NMP for some time and the NMP systems calculate it using electronic feeds. Verizon’s gateway Wisdom system receives a CLEC’s extended loop qualification request and puts a system time/date receipt stamp on each transaction. This system time/date stamp is used as the start time for measuring the 48-hour interval. The system creates an Inbound file that includes this arrival date/time and other information for every transaction. The request is transmitted to Verizon’s work force management system that creates an Intermediate file. A Verizon NMC employee then reviews the request manually, obtains the required loop qualification information, and puts it in electronic form. The Wisdom system transmits the information to the CLEC. The date and time when the information is sent to the CLEC is recorded by another system time/date stamp, and this determines the end time for the interval being measured. The system then creates an Outbound file that includes this date/time and additional information for every transaction. NMP uses these files to develop the PO-8-01 performance results.

If PO-8-02 ever has activity, Verizon will report its results using a manual process.

Liberty requested all source documents, work papers, spreadsheets, etc. used to prepare the December 2002 PO-8 performance results.<sup>208</sup> In response, Verizon provided the layouts for the Inbound and Outbound files discussed above, and for the Intermediate file as well. However, Verizon did not provide any source data to enable recalculation of the December 2002 results. Liberty submitted a follow-on request for that data.<sup>209</sup> Liberty used the data received in response to this follow-on request to recalculate the December 2002 PO-8-01 metric results and obtained the same result as that reported by Verizon.

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<sup>205</sup> Response to Data Request #818.

<sup>206</sup> Data Requests #183 and #184 issued on February 20, 2003.

<sup>207</sup> Response to Data Request #185.

<sup>208</sup> Response to Data Request #187.

<sup>209</sup> Data Request #816.

Liberty requested that Verizon provide all policies, procedures, guidelines, handbooks, flow diagrams, technical documentation, or other documents that are related to the determination and reporting of performance measures in the Pre-Ordering category.<sup>210</sup> The response included no documentation for PO-8 other than a data structure table and queries that would be used to generate PO-8-02 results, which have never had any activity. Liberty submitted a follow-on request for methods and procedures documentation, but again the only documents provided related to PO-8-02.<sup>211</sup>

### 3. Findings and Recommendations

#### **Verizon is not following exactly the *Definition* section of the Guidelines for PO-8.**

The *Definition* section of the Guidelines for PO-8 states that:

*Measures the response time for the provision of loop qualification information when such information is not available through an electronic database.*

However, Verizon is actually including in the PO-8 results every request for manual loop qualification, regardless of whether the information was available in an electronic database. In fact, if a CLEC submits a request for manual loop qualification instead of executing a Facility Availability pre-order transaction, the request will always be included in PO-8.<sup>212</sup> Verizon also noted that all loop qualification data are available through the electronic database.<sup>213</sup>

Liberty recommends that, if all parties agree, the Guidelines be revised to change the *Definition* section for PO-8 from “when such information is not available through an electronic database” to “when such information is provided manually.”

#### **Verizon has essentially no documented policies, procedures or guidelines that govern how the PO-8 metric results are to be developed and calculated.**

The only documentation Liberty received regarding PO-8 was a table describing the data structure for the PO-8-02 file, the query that would be used to generate the PO-8-02 results, and a PO-8-02 system design document. Liberty recommends that Verizon develop and document detailed methods and procedures for the calculation and reporting of PO-8, especially PO-8-01, which is the only PO-8 sub-metric that has ever had any activity.

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<sup>210</sup> Data Request #6.

<sup>211</sup> Data Request #817.

<sup>212</sup> Interview #34, March 4, 2003.

<sup>213</sup> Response to Data Request #186.

## IV. Ordering Performance Measures

### A. Background Information and Summary of Findings

The Ordering domain consists of 9 basic performance measures, 46 metrics, and 236 reported results by product group. There are 77 reported OR results that are relevant to Verizon’s IP. The measures in this domain report:<sup>214</sup>

- Order confirmation timeliness
- Reject timeliness
- Percent rejects
- Timeliness of completion notifications
- Percent flow-through
- Order accuracy
- Percent order confirmation/reject sent within three business days
- Acknowledgement timeliness
- Acknowledgement completeness.

This first section of the Ordering chapter contains a summary of Liberty’s findings and recommendations. The following sections on each of the OR family of measures (*i.e.*, OR-1, OR-2, etc.) contain more specific findings and recommendations. In addition, this first section provides (1) overview descriptions of Verizon’s ordering process and ordering metric data to assist the reader in understanding the metric write-ups that follow, (2) an assessment of Verizon’s documentation for the OR domain, (3) Liberty’s assessment of Verizon’s ordering data integrity, and (4) Liberty’s assessment of some generic aspects of Verizon’s OR metric calculation processes.

#### 1. Summary of Liberty’s Findings and Recommendations for the OR Domain

Liberty found that Verizon produced generally accurate results for the OR performance measures. Liberty successfully replicated the results for all of the sub-metrics it attempted to recalculate for the February 2003 data month. Liberty also found that Verizon is generally following the Guidelines by correctly applying exclusions and by properly defining the logic and data fields it uses to calculate the denominators and numerators in the OR metric calculations. Throughout this audit Liberty found the Verizon personnel assigned to work with Liberty on the ordering metrics to be knowledgeable and cooperative. After an initial slow start, Verizon was responsive to Liberty’s requests for data and interviews.

However, Liberty found that Verizon’s documentation of its processes was initially inadequate, and only through informal documents Verizon prepared for interviews with Liberty and responses to many data requests did Verizon describe the processes used to determine OR performance results. For example, in January 2003, Liberty requested a copy of Verizon’s Metric

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<sup>214</sup> C2C Guidelines, April 2002; IP, October 2001; April 2002 (Revised).

Business Rules, which are the algorithms that Verizon uses to calculate the OR metrics.<sup>215</sup> Verizon was not able to produce a version of these business rules that it believed were accurate until May 1<sup>st</sup>. In the “Findings and Recommendations” sections below for each of the ordering metrics, Liberty identified the problems it discovered with Verizon’s processes. In many of these findings, Liberty found that Verizon’s method was reasonable but that Verizon should seek a clarification to the Guidelines to make clear the process it is following. In other instances, Liberty found that Verizon needed to change its methods for making exclusions or calculations to be consistent with the Guidelines. Other of Liberty’s findings involved misrepresentation of results due to the use of an inflated line count, inconsistencies between the methods Verizon uses to treat LSR orders and ASR orders, algorithm documentation issues, and manual processes that may affect the accuracy of metric results.

## **2. Verizon’s Ordering Process**

As part of its audit of Verizon’s calculation of the OR performance measures, Liberty obtained an overview of Verizon’s business processes and systems that generate the data used for the measures. Liberty reviewed how Verizon captures the raw data and whether it collects and reports all relevant data. Liberty also sought to identify whether there were any significant opportunities for inaccuracies in source data.

CLECs submit requests for services to Verizon through Local Service Requests (LSRs) and Access Service Requests (ASRs).<sup>216</sup> CLECs may submit LSRs electronically through a Web GUI interface, via Verizon’s NetLink EDI interface, or by mail/fax. CLECs order all resale products and most UNE products with LSRs. CLECs may submit ASRs electronically through the Web GUI, the Carrier Service Gateway (CGS), via Verizon’s Network Data Mover (NDM) EDI interface,<sup>217</sup> or by mail/fax. CLECs order interconnection trunks and DS0, DS1, and DS3 facilities with ASRs.<sup>218</sup>

The Local Service Ordering Guidelines set forth the information that CLECs need to provide in an order. CLECs assign their own purchase order number (PON) to orders, and can supplement or cancel orders using a different version number for the same PON. As noted in the Guidelines, Verizon does not record orders that fail basic front-end edits in its ordering system. For LSRs submitted through the Web GUI and ASRs submitted through the CSG, Verizon’s systems perform basic front-end edits on the CLEC user’s screen, and prevent the CLEC from submitting an order with errors. For LSR and ASR orders submitted through EDI, Verizon’s systems apply basic edits before the order moves to Verizon’s backend systems. There are no are basic edit

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<sup>215</sup> Response to Data Request #7.

<sup>216</sup> Verizon includes all types of orders submitted by LSR (N, T, C, R, D, and F) in the OR metrics, except for OR-6-01 and OR-6-02, which exclude D, R, and F orders, and OR-1-13 and OR-1-19, which exclude D orders. Verizon includes all types of orders submitted by ASR (N, C and D) in the relevant metrics. Dark fiber is not included in the OR metrics.

<sup>217</sup> Verizon indicated in response to Data Request #412 that NDM functions as an interface between Verizon’s EDI translator and that of the CLEC.

<sup>218</sup> In some instances, CLECs can order DS0 facilities through an LSR.

processes for fax or mail orders, as Verizon representatives input these directly into the service order processor (SOP).<sup>219</sup>

LSRs that Verizon receives via EDI or the Web GUI flow to the LSR gateway system, Request Manager. Request Manager performs preliminary edits on the order and sends it to either Request Broker, the Verizon automated order generating system, or to the National Market Center (NMC) for manual handling. The Request Manager system creates records for each event on the order such as submission, confirmation or rejection, SOP completion, and billing completion.

Many LSR orders submitted electronically can flow all the way through to Verizon’s New Jersey SOP, the Minimum Input Service Order System (MISOS), without manual intervention. In other cases, these LSRs drop out, and Verizon representatives in its NMC must review and input them manually into MISOS. The NMC also receives and inputs into MISOS any LSRs that CLECs submit by fax or mail. Verizon representatives use the NetStatus system to track and investigate PONs, errors, and exceptions for LSR orders.<sup>220</sup> NetStatus can access data from other ordering systems, as well as downstream billing and provisioning systems such as the Customer Record Information System (CRIS) and Work Force Administration (WFA).

MISOS generates one or more service orders for each LSR, depending on the services that the CLEC requests. All systems downstream from MISOS process information on the service order level. The Request Manager system keeps track of all service orders that relate to a given PON or LSR, and stores relevant date and time information about an LSR. Request Manager also generates the notifications that Verizon sends to a CLEC to acknowledge the receipt of EDI files, to confirm or reject an order, and to notify the CLEC of order or billing completion. For Web GUI orders, the Request Manager system sends these notifications to the CLEC over the same Web GUI. For EDI orders, Request Manager sends a message to Verizon’s NetLink system, which then sends the notifications in EDI format. Verizon’s NetStatus system stores timestamp information about orders that NetLink processes.

ASRs that Verizon receives via CSG or NDM flow to the NMC, where Verizon representatives enter the order manually into the ASR gateway system, the Exchange Access Control and Tracking System (EXACT). EXACT performs much like Request Manager, and records information about each event on the order, such as submission, firm order confirmation (FOC) or rejection, and completion. The NMC personnel perform checks on the order, accessing information from other Verizon systems such as the Trunk Inventory Record Keeping System (TIRKS) as necessary. If there are no errors or facilities issues, the representatives create service orders for the ASR in the Access Service Order Processor (ASOP). Verizon’s ASR ordering systems do not send notifications to the CLEC through EDI or the Web GUI. Instead, CLECs can view information on their orders in EXACT, which is accessible through the CSG.<sup>221</sup>

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<sup>219</sup> Response to Data Request #320.

<sup>220</sup> In response to Data Request #331, Verizon stated that NetStatus was its system for the Verizon East footprint. The NetStatus system replaced Verizon’s Pontronics systems in August 2002.

<sup>221</sup> Response to Data Request #414.



### **3. Verizon’s Documentation**

Verizon slowed Liberty’s progress in the audit of the ordering domain because it was initially unable to provide Liberty with adequate documentation. Early on, Verizon did not have documentation available to adequately describe its ordering source systems and NMP, the key data fields, derived fields or indicators, how it applied Guidelines’ exclusions, and the structure of the data files that it used to calculate the metrics. It is unclear why Verizon did not have this documentation in place, since it moved most of the OR metrics to NMP by mid-2002. Verizon produced a large amount of documentation in preparation for an interview with Liberty in March.<sup>222</sup> In general, this documentation was comprehensive, and covered the ordering source systems, data flows from the source systems to the NMP warehouse, the data files that Verizon extracts from NMP to calculate the metrics, as well as definitions of data fields and methods for applying exclusions. However, Liberty subsequently had to issue numerous data requests and hold follow-up interviews to clarify certain areas that were either incorrect, or not presented in a clear or complete fashion, in the documentation.

Liberty’s analysis of Verizon’s measures was also slowed by Verizon’s inability to provide reliable versions of the algorithms that it uses to calculate the OR metrics, the Metric Business Rules (MBR). Liberty had to use as a base for the analyses in this chapter the December 2002 version of the MBR.<sup>223</sup> Refer to the introductory section of this report on Verizon’s reporting for additional discussion of the MBR.

### **4. Verizon Metrics Data**

Liberty reviewed the process by which Verizon extracts data from its legacy source systems and sends them to the NMP data warehouse. Liberty also reviewed the process by which Verizon extracts data from the NMP warehouse and creates the data tables that its metrics algorithms use to process results each month.

Verizon accumulates selected data from ordering source systems in its NMP data warehouse. Verizon sends information on LSR orders to NMP daily from the Request Manager system and information on LSR order EDI notifications and acknowledgments from the NetStatus system. Verizon sends information on ASR orders to NMP on a daily and monthly basis from EXACT, WFA, ASOP, and TIRKS.

Verizon performs a series of transformations on the data from the legacy system files to organize it into the NMP database structure, but Verizon leaves the source data unaltered. During these processing steps, Verizon performs basic error checks on key fields like PON, state, CLEC ID, and event dates. Any records that fail basic error checks fall to error files. The business owners of the data review these error files and incorporate any valid records back into the NMP

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<sup>222</sup> Interview #22, March 7, March 14, and March 20, 2003.

<sup>223</sup> Response to Data Request #420.

warehouse.<sup>224</sup> Verizon has indicated that so far, in the LSR OR domain, there have been no instances of it dropping records into the error tables.<sup>225</sup>

To calculate the metrics each month, Verizon extracts selected information from the NMP warehouse and places it in data marts and then in specific data tables. In addition to fundamental information such as the state, CLEC, PON, and product, these tables contain certain derived values. NMP calculates such values as the elapsed time between Verizon’s receipt of an LSR and its distribution of the LSR confirmation or reject, and the elapsed time between the actual order completion and the notification of order completion. It also calculates indicator fields such as on time completion and flag values to indicate test CLEC or Verizon affiliate PONs.

During the creation of the data marts, Verizon also updates the timestamp information for LSRs that it receives via EDI. NMP initially populates the date/time for order receipt and for the creation of notifications (such as LSR confirmations or billing confirmation) with data from Request Manager. If NMP can match NetLink timestamp information for a given PON, it replaces the data from Request Manager with data from NetLink. Thus in most cases the times that Verizon sends a notification for EDI orders in the LSR data table reflects the date/time that NetLink translates, encrypts, and attempts to send the notification to the CLEC.

Each month, Verizon creates the LSR Order Fact table, which it uses in calculating most of the OR metrics.<sup>226</sup> Verizon selects records to be included in the LSR Order Fact table for a given month by extracting from the NMP warehouse any ordering records that have one of the following dates within the reporting month: received date, confirmation date, reject date, CRIS notification date, SOP notification date, and the provisioning completion notification date from Resource Manager.<sup>227</sup>

Verizon creates an ASR Order Fact table and a Trunk Fact table, used for certain OR-1 and OR-2 metrics. For these tables, Verizon selects records for a given month by extracting from the NMP warehouse any ordering records that have had activity during the reporting month, such as a submission, rejection, or confirmation.<sup>228</sup> Verizon creates an Order Acknowledgements table for OR-8 and OR-9. Verizon selects records to be included in the Order Acknowledgement table by extracting records from the NMP warehouse that have either a receipt date or an acknowledgement date within a given month.<sup>229</sup> As part of its provisioning domain, Verizon creates the LSR Service Order Fact table, which it uses for the OR-4-06 through OR-4-08 measures.

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<sup>224</sup> Response to Data Request #416.

<sup>225</sup> Response to Data Request #334.

<sup>226</sup> Verizon does not use these files for all metrics. For example, Verizon uses a stand-alone application to calculate the OR-1-19 metric manually.

<sup>227</sup> Response to Data Request #628.

<sup>228</sup> Response to Data Request #696.

<sup>229</sup> Response to Data Request #684 (revised).

## 5. Liberty's Review of Verizon's OR Data

An important element of Liberty's audit of the OR metrics was the analysis of the accuracy and completeness of the data that Verizon uses to calculate the metrics. If the data that NMP uses to calculate the metrics is inconsistent with the data captured by Verizon's ordering source systems, the results that Verizon reports would be inaccurate even if it has correctly defined the key variables, properly applied exclusions, and accurately coded its metrics algorithms. Similarly, if data were missing from NMP, Verizon would be underreporting its results.

Verizon uses the LSR Order Fact table from NMP in most of the OR metrics (OR-1 through OR-4, OR-5-01 and OR-5-02, OR-6-03, and OR-7). Liberty focused its data analysis efforts on the LSR Order Fact table since these data constitute by far the vast majority of orders.<sup>230</sup> To assess the quality of the data that Verizon uses to calculate the ordering metrics, Liberty took a sample of 150 PONs from the February 2003 LSR Order Fact table, and requested that Verizon provide the data on these same PONs from the source systems that provided the data to NMP.<sup>231</sup> For 50 of these PONs, Liberty compared the source systems data to the data from NMP for several key data fields, including SOP notification date/time, CRIS notification date/time, order type, order line quantity, confirmation count, and confirmation date/time. Liberty expected that the data from NMP would always match the data from the source systems, but this was not the case. The following is a summary of Liberty's findings with respect to this data validation check.

Liberty compared the SOP notification date/time for 50 PONs and found a difference between the times for 10 of them. These differences were the result of three factors. Seven of the PONs were EDI orders, and Liberty had initially received only timestamp information from Request Manager, not NetLink, which NMP uses to overlay Request Manager time stamps for EDI orders. Liberty substantiated that the differences were due to the timestamp overlays in these cases.<sup>232</sup> One order was missing information as a result of truncated source data mistakenly provided by Verizon in response to a Liberty data request.<sup>233</sup> Verizon later provided complete information on this order and Liberty validated the accuracy of the timestamps.<sup>234</sup> Two orders had a SOP notification date/time of 1/1/1950, which NMP uses to populate the field if there is a null value in the source data for this field. Verizon does this to prevent software processing problems when it runs the business rules code to produce the metric results.<sup>235</sup>

Liberty compared the CRIS notification date/time for 50 PONs and found a small difference in the times for 6 of them. These differences were also the result of the EDI timestamp overlay.<sup>236</sup>

Liberty compared the number of order confirmations for 50 PONs and found a difference in the counts for 7 PONs. NMP loads and counts unique confirmation records only. Verizon's NMP

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<sup>230</sup> For example, there were roughly 189,000 records in the February 2003 LSR Order Fact table, compared to roughly 800 in the ASR Order Fact table and 800 in the Trunk Fact table.

<sup>231</sup> Responses to Data Requests #580 and #506.

<sup>232</sup> Response to Data Request #791. Verizon indicated that it documented this overlay process for EDI orders in Change Control Notice 6318.

<sup>233</sup> Data Request #506.

<sup>234</sup> Response to Data Request #792.

<sup>235</sup> Responses to Data Requests #740 and #793.

<sup>236</sup> Response to Data Request #794.

system will disregard duplicate records it finds in the source confirmation data records containing the same date and time. Liberty verified that all of the discrepancies it identified were in fact duplicate records.<sup>237</sup>

Liberty compared the order line quantity for 50 PONs and found a difference in the line quantity for 8 of them. Verizon’s process for populating the line number field in the LSR Order Fact table is to use source files containing order submission data and files containing order confirmation data. In cases where there is a discrepancy in the line count between these two sources, NMP always uses the line count that is the greater of the two.<sup>238</sup> Verizon’s rationale for this is “if the submission line count is used for metrics purposes and not the confirmation line count, Verizon must evaluate the request, taking into account the lines requested on the submission record. This may result in a smaller line count for the confirmation, but it is accurate to take the higher line count to account for the work required.”<sup>239</sup> This process is inappropriate. In all cases where Liberty found a discrepancy, the greater number of lines was in the submission data. Yet, the true line count that Verizon provisions on the order is the count that it confirms back to the CLEC, which is the count that it should use to determine the metric standard per the Guidelines. Considering that the Guidelines base the standard for many of the OR-1 (order confirmation timeliness) and OR-2 (reject timeliness) measures on the number of lines, Verizon is potentially misclassifying orders into a category that allows for a longer response time interval. For example, a resale POTS order for less than 6 lines that does not flow through has a confirmation interval standard of 24 hours per the Guidelines. The same type of order for greater than 6 lines has an interval standard of 72 hours.

Liberty reviewed a sample of 112 random PONs from the February data month, and found that 6 (or 5.4 percent) would be held to the wrong metric standard because the submission data file indicated a line count of greater than 6 lines while the confirmation data file showed a count of less than 6 lines. The correct process for populating the NMP line number field is to use the line count from the confirmation source data. Liberty discovered this error late in the audit and did not have the data available to estimate its effect on reported results.

Liberty compared the order type codes for 50 PONs and found a difference in order type codes for 2 of them. Liberty learned that Verizon’s NMP system uses the request type field to reclassify order type 4 orders (other) to order type 2 (UNE loop) or 3 (UNE Platform). Liberty examined the request type associated with these PONs and determined that this reclassification was appropriate on the basis of documentation supplied by Verizon.<sup>240</sup>

Liberty compared the order confirmation times for 50 PONs and found a small difference in the times recorded for 5 of them. These differences were the result of the EDI timestamp overlay.<sup>241</sup>

Liberty also obtained a limited amount of ordering data from a participating CLEC. Liberty used this independent data source to check against the data from NMP that Verizon uses to calculate

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<sup>237</sup> Response to Data Request #801.

<sup>238</sup> Response to Data Request #802 and subsequent clarifying telephone conversations with Verizon.

<sup>239</sup> Response to Data Request #802 (third clarification).

<sup>240</sup> Response to Data Request #795.

<sup>241</sup> Response to Data Request #800.

the metrics. Liberty determined that all PONS were included in Verizon’s results.<sup>242</sup> Liberty initially identified a discrepancy between the number of confirmations the CLEC said that it received and the confirmation counts for these PONs shown in NMP. However, similar to Liberty’s experience with confirmation counts when comparing source data to the fact table described above, all of the confirmation count discrepancies were the result of duplicate confirmations with the same date/time stamps. Verizon only records unique confirmations in NMP.<sup>243</sup>

Liberty found examples of LSR PON versions that have both a reject and a confirmation, and, in all cases, Verizon rejected the PON version first. Verizon does not have documentation in place describing how its NMC representatives confirm a PON version that it had previously rejected. Verizon indicated that in some cases it mistakenly rejects a PON version, usually through human error. If the CLEC calls to inquire why Verizon rejected the order, or if Verizon discovers a mistake during in-house reviews of orders, the NMC representative can update the LSR and then confirm the same version of the PON.<sup>244</sup> Verizon includes such PON versions in both the confirmation and reject metrics. In these cases, the flow-through indicator that Verizon has recorded in NMP for these PON versions reflects that of the confirmation. For the OR-1 metrics, the flow-through indicator is correct, and the performance results would reflect Verizon’s delay in confirming the order.<sup>245</sup>

For the reject timeliness metric, OR-2, however, Verizon in some instances is using a flow-through indicator associated with the confirmation rather than the reject. This is incorrect.<sup>246</sup> Liberty found that the number of cases in which this occurred was very small in comparison to the total number of orders, and that it would have a minimal effect on reported results.<sup>247</sup> Nevertheless, Verizon should exclude from the OR-2 metrics any PON version that it confirmed after it sent a reject notice, since the flow-through indicator for these PON versions is incorrect.

## **6. General Review of Verizon’s Metric Calculation Process**

Liberty’s audit included an examination of the key data fields used by Verizon to calculate each OR metrics to determine if they were consistent with the Guidelines. Liberty assessed whether Verizon correctly calculated any logic flags and any fields derived from source data. Liberty also analyzed whether Verizon adequately implemented the exclusions set forth in the Guidelines for each measure.

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<sup>242</sup> Responses to Data Requests #607 and #796.

<sup>243</sup> Responses to Data Requests #797 and #801.

<sup>244</sup> Response to Data Request #822.

<sup>245</sup> In response to Data Request #822, Verizon clarified that certain of these confirmed orders flowed through because Verizon corrected a system problem, such as unavailability of the Line Information Data Base, so no manual intervention in handling the order was required.

<sup>246</sup> Response to Data Request #821.

<sup>247</sup> Liberty found 109 PON versions with both a reject and a confirmation in the LSR Order Fact data for the February 2003 data month. This equates to less than one-tenth of 1 percent of the PONS. Liberty also identified a case in the ASR Order Fact data.

Liberty discusses the details of this analysis for each OR measure in the following sections of this chapter. In general, Liberty found that Verizon had appropriately defined and calculated key fields, except for OR-3 and certain of the OR-4 sub-metrics. Verizon generally implements the Guidelines exclusions properly. However, Liberty noted certain instances where Verizon should seek clarifications to the language of the Guidelines to reflect how it is applying these exclusions, or to reflect additional exclusions that it makes, such as those for special projects.

Liberty reviewed the programming algorithms that Verizon uses to calculate the OR measures to determine if they produced results that were accurately defined and consistent with the Guidelines. As part of its analysis, Liberty examined how Verizon defined the numerator and denominator of the measures to determine that no orders would fall through the cracks and never be reported. Verizon uses a separate algorithm to calculate each product group result for the OR metrics, and Liberty reviewed each one to determine if it was calculating the result correctly and in a manner consistent with the Guidelines.

Liberty recalculated the CLEC aggregate and Verizon affiliate results for nearly every sub-metric as an additional check on the reliability of Verizon’s results.

During its review, Liberty identified some common issues that affect many of the OR measures. For example, Verizon considers PARTS (Packet at Remove Terminal Service) orders to be an interstate access service not covered by the Guidelines, and excludes all PARTS orders from the OR-1 through OR-7 metrics.<sup>248</sup> Verizon does not exclude PARTS orders from the OR-8 and OR-9 metrics, however. These two metrics involve acknowledgements of EDI files, and, at the point that Verizon sends the acknowledgements, it does not know what product the orders are for.<sup>249</sup>

One of the UNE product groups for the OR-1 and OR-2 metrics is 2-wire xDSL line sharing. Verizon uses the same order type designation for line sharing orders that it does for line splitting orders, and therefore reports both line sharing and line splitting. These are two different products and it is incorrect to report both under line sharing.<sup>250</sup>

Verizon reports orders for 2-wire digital, xDSL, and line sharing products, both resale and UNE, as part of the POTS/Pre-qualified complex product group if the CLEC has already completed loop qualification as part of the pre-ordering process.<sup>251</sup> When the CLEC does not complete loop qualification prior to submitting its order, there will be an “R” (for required) in the loop qualification field on the LSR. Verizon’s process automatically sends such orders through an automated loop qualification process. If the order passes through the automated process successfully, it will flow through to the SOP. If the order does not pass through the automated process successfully, Verizon’s system routes the order to a representative in the NMC, who sends the order to Verizon engineering for loop qualification.<sup>252</sup>

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<sup>248</sup> Responses to Data Requests #339 and #583.

<sup>249</sup> Response to Data Request #688.

<sup>250</sup> For line sharing, the customer’s line is shared between Verizon, who provides the voice service, and a CLEC who provides the data service. For line splitting, the voice and data service are either both provided by a single CLEC using UNE-P to provide the voice service, or by two separate CLECs. Verizon has no relationship with the end user in a line splitting service arrangement.

<sup>251</sup> Response to Data Request #610.

<sup>252</sup> Response to Data Request #611.

The Guidelines indicate in footnote 10 of the OR-1 section that Verizon should report orders requiring loop qualification in the OR-1-01 measure “if they flow through.” Since Verizon has an automated process in place so that orders for these types of products can flow through, Verizon should report these orders in OR-1-01.<sup>253</sup>

For ASR orders, if Verizon is unable to determine the product on the order (DS0, DS1, or DS3), it assigns it a category of “other.”<sup>254</sup> Verizon reports such orders for OR-1 and OR-2 measures with the UNE Non-DS0, DS1, and DS3 specials product group that CLECs order with LSRs. Liberty believes that this designation may be inappropriate, and Verizon should substantiate that these unidentified products are in fact non-DS0, DS1, and DS3 specials or else exclude them from the measures.

Verizon indicated that the Guidelines’ descriptions for several of the OR-1 and OR-2 sub-metrics were not literally correct.<sup>255</sup> CLECs order UNE DS0, DS1, and DS3 Specials using ASRs. As such, the CLEC receives a FOC or ASR rejection, not an LSR confirmation or LSR rejection, for that product. Verizon should therefore seek a change to the descriptions of the relevant OR-1 and OR-2 metrics.

## **7. Findings and Recommendations**

The following findings and recommendations relate to the Ordering domain in general or more than one OR measure. Liberty reports additional findings in each of the sections related to specific OR measures.

### **Verizon’s documentation for the OR metrics is not clear, accurate, and complete.**

Verizon prepared much of the documentation that Liberty received as a result of this audit. Liberty recommends that Verizon clearly document its process for obtaining source data and calculating the ordering metrics. Additionally, Liberty recommends that Verizon publish clear and accurate Metric Business Rules on its web site that could be used by the Board and CLECs to replicate or better understand Verizon’s results if they so choose.

### **Verizon does not distinguish between line sharing and line splitting products in its OR results.**

Verizon uses the same order type designation for both line sharing and line splitting products, and as such line splitting products are included in line sharing reported results. Liberty

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<sup>253</sup> Liberty found the following number of resale orders that achieved flow-through: 2-wire digital – 2; 2-wire xDSL – 0, and specials – 8. Liberty found the following number of UNE and UNE platform orders that achieved flow-through: 2-wire digital – 62; 2-wire xDSL – 146, and specials – 2. Liberty believes that these product groups should also be added to OR-1-02, although the footnote does not reference this sub-metric.

<sup>254</sup> Responses to Data Requests #492, #590, and #591 (clarification statement).

<sup>255</sup> Response to Data Request #319.

recommends that Verizon categorize these products separately so that it can accurately report line sharing results according to the Guidelines.

**Verizon should report OR-1-01 results for resale and UNE 2-wire digital, 2-wire xDSL, and specials orders that require loop qualification and achieve flow through in order to be consistent with the Guidelines.**

Footnote 10 of the Guidelines for OR-1 states that Verizon should report OR-1-01 results for these product types if they flow through. Liberty recommends that Verizon add these order types to the monthly reports as these order types are now achieving flow through.

**The descriptions in the Guidelines for several OR-1 and OR-2 metrics are not correct with respect to products ordered with an ASR.**

For UNE DS0, DS1, and DS3 orders, a CLEC receives a FOC or an ASR rejection, not a LSRC or a LSR rejection as described in the Guidelines. Liberty recommends that Verizon seek an update to the Guidelines to make this clear.

**Verizon is misrepresenting its results in the OR-1 and OR-2 metrics by using inflated line count quantities in some instances.**

Verizon’s practice of using the greater of lines counts from the submission and confirmation source data files when calculating OR-1 and OR-2 creates a situation wherein the wrong standard is applied (*e.g.*, the standard for less than 6 lines versus the standard for greater than 6 lines). In a sample of 112 random PONs from the February data month, Liberty found that 6 (5.4 percent) would have been held to the wrong metric standard because the source submission file had a line count of greater than 6 lines while the confirmation count on these orders was less than 6 lines. Verizon should change its process to rely solely on the confirmation line count per the Guidelines when calculating these measures. Verizon should restate its prior results for the OR-1 and OR-2 measures using the confirmation line count quantities to determine the effect of this change.

**In at least a limited number of cases, Verizon uses an incorrect flow-through indicator when calculating OR-2 metric results.**

At times, Verizon confirms the same PON version that it had previously rejected. The flow-through indicator in the LSR Order Fact table data for the order represents that of the subsequent confirmation, not the rejection, in these cases. Therefore, for the OR-2 reject timeliness metrics, Verizon uses the wrong flow-through indicator to calculate results. Verizon should exclude from OR-2 results any rejects that Verizon follows with a confirmation on the same PON version.



## **B. OR-1, Order Confirmation Timeliness**

### **1. Background**

The metrics within OR-1 report Verizon’s performance in issuing order confirmations on a timely basis. There are 14 sub-metrics within OR-1. Six measure the average amount of time between Verizon’s receipt of an LSR or ASR and its distribution of a service order confirmation, and another six measure the percentage of order confirmations that Verizon sends on time. Two other sub-metrics measure Verizon’s performance in issuing trunk design record layouts and in responding to requests from CLECs for inbound trunks.

The OR-1-01 through OR-1-10 sub-metrics focus on distinct categories of resale and UNE orders, *i.e.*, orders submitted electronically that flow-through to Verizon’s backend systems, orders submitted electronically that require manual handling, and orders submitted manually via fax or mail. The Guidelines define additional disaggregation of these categories on the basis of the number of lines on the order. Verizon reports each of these sub-metrics for a specified number of distinct product groups, such as resale POTS/pre-qualified complex and UNE specials. The OR-1-11 and OR-1-12 sub-metrics focus on Verizon’s performance in issuing confirmations on orders for CLEC-to-Verizon interconnection trunks. In all, there are 111 individual reported results in this measure group. Of these, 32 are included in Verizon’s IP.

The exclusions that apply to OR-1 are:

- Verizon test orders
- Confirmations that Verizon resends for reasons other than its own error
- Weekend and holiday hours for non-flow-through orders
- Planned Service Order Processor (SOP) downtime for flow-through orders
- Verizon affiliate data from CLEC results.

Verizon reports these results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. For those metrics within OR-1 that measure average confirmation time (OR-1-01, 1-03, 1-05, 1-07, 1-09, and 1-11), there is no standard. For those that measure the percentage on time confirmations, design record layouts, or responses to requests for inbound trunks (OR-1-02, 1-04, 1-06, 1-08, 1-10, 1-12, 1-13, and 1-19), the standard is 95 percent within a standard interval that varies by product, size of order, whether the order was submitted electronically, and whether the order flowed through or required manual handling.

## 2. Analysis and Evaluation

### Resale and UNE Products – OR-1-01 through OR-1-10

For resale and UNE products, the Guidelines define confirmation response time as the amount of elapsed time (in hours and minutes) between the time that Verizon receives an LSR (or, for the IOF portion of an EEL order,<sup>256</sup> an ASR) and the time it distributes a service order confirmation.

For the OR-1 metrics, Verizon treats each version of a PON as a new order request, and there may be more than one confirmation on the same PON number. If a CLEC submits a new version of an LSR to supplement its order after Verizon has already confirmed the original LSR, Verizon will send another confirmation on the new PON version. Verizon does not necessarily send a confirmation for every version, however. If, for example, a CLEC submits three versions of the same PON prior to the time Verizon confirms the order, Verizon will send the confirmation on the latest version, and will not send a confirmation on the first two.<sup>257</sup>

The Guidelines indicate that a migration of less than 6 lines, where the lines are part of an account that includes six or more lines that Verizon must arrange, will be treated as an order for six or more lines. Verizon indicated that such orders do not flow through to the SOP, and instead fall to the NMC for manual processing. Once the NMC issues the service orders, Verizon updates the number of lines on the order confirmation to indicate that the request is for 6 or more lines.<sup>258</sup>

Verizon extracts ordering data from the NMP warehouse to create the LSR Order Fact and ASR Order Fact tables used by Verizon’s metric algorithms. The key data fields in the LSR Order Fact table for the OR-1-01 through OR-1-10 measures are CLEC ID, PON, PON version, receipt date/time, confirmation date/time, process flow category, order type (*e.g.*, resale, UNE loop, or UNE platform), service order class (such as UNE POTS platform or specials), test account flag, confirmation interval, and on time confirmation indicator.

NMP sets the test account flag to Y for test CLEC, VADI, and Verizon affiliate IDs.<sup>259</sup> NMP calculates the confirmation interval as the difference between the order receipt date/time and the date/time of the confirmation. NMP assigns a value of Y to the on time confirmation indicator if the elapsed time between the receipt date/time and the confirmation date/time is within the standard interval for the given product (service order class). Liberty reviewed the elapsed time calculation used to determine the LSR confirmation (LSRC) interval and the assignment of the indicator and concluded that NMP determined them correctly.

The key data fields in the ASR Order Fact table for the OR-1 measures are CLEC ID, PON, PON version, receipt date/time, confirmation date/time, product type (*e.g.*, DS0, DS1), activity type

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<sup>256</sup> The IOF (interoffice facility) portion of an EEL order is a high capacity circuit, also known as an EEL backbone, which runs from a central office in which the CLEC is not collocated to a central office in which it is collocated.

<sup>257</sup> Response to Data Request #338.

<sup>258</sup> Response to Data Request #593.

<sup>259</sup> Response to Data Request #383.

(N, C, or D), service order type (manual or electronic), facilities indicator, exclusion indicator, and FOC interval. The ASR Order Fact table data pertains only to UNE specials products.

Rather than using the number of lines on the order, Verizon uses the facilities indicator field to select in which OR-1 sub-metric a given ASR will be included. All specials orders require facilities verification, and the Guidelines indicate that Verizon should count such orders among the orders with 6 or more lines and hold them to the standard interval of 72 hours for confirmations. NMP assigns all ASR specials records in the ASR Order Fact table a facilities indicator value of Y. Verizon’s metrics algorithms include only those specials with a facilities indicator of N (*i.e.*, none) in the OR-1-03, OR-1-04, OR-1-07 and OR-1-08 sub-metrics (less than 6 lines), and those with a facilities indicator of Y in the OR-1-05, OR-1-06, OR-1-09, and OR-1-10 sub-metrics (6 or more lines).<sup>260</sup>

NMP sets the exclusion indicator to Y for test CLEC IDs, Verizon affiliate IDs, VADI, and special projects, as well as PARTS orders.<sup>261</sup> NMP calculates the FOC interval as the difference between the order receipt date/time and the date/time of the confirmation. Liberty reviewed the calculation of the FOC interval and concluded that NMP calculated it properly.

Liberty concluded that Verizon’s definitions for the key data fields used to calculate the metrics are consistent with the Guidelines.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon excludes test orders and Verizon affiliate LSR orders by a logic step in its algorithm that screens out records that have a test account flag, which NMP determines on the basis of a look-up table of test CLEC IDs, VADI, and Verizon affiliate IDs.<sup>262</sup> For ASR orders, Verizon calculates each sub-metric result by individual CLEC and Verizon affiliate ID and by exclusion indicator (which NMP sets to Y for test CLEC, VADI, and Verizon affiliates on the basis of a look-up table),<sup>263</sup> and aggregates them accordingly in the NMP reporting system.<sup>264</sup>

As part of its review of confirmation intervals for LSR and ASR orders, Liberty examined how Verizon excluded weekend and holiday hours from elapsed times for non-flow-through orders, and scheduled SOP downtimes from elapsed times for flow-through orders. Liberty found that Verizon properly applied these exclusions.

The Guidelines state that Verizon should exclude from the OR-1 metrics confirmations that it resends for reasons other than Verizon error. In all cases, Verizon counts only one confirmation per PON version for LSR orders. NMP receives information from Verizon’s source systems on all confirmations that Verizon sends. In most circumstances, Verizon sends only one confirmation (the original), and NMP records this date/time in the LSR Order Fact confirmation date/time field, and uses it in the OR-1 metrics calculations. In other cases, however, Verizon resends the confirmation on a given PON version due to its own error or at CLEC request.

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<sup>260</sup> Responses to Data Requests #492, #590, #591 (clarification statement), and #701.

<sup>261</sup> Responses to Data Requests #419, #496, #699, and #700.

<sup>262</sup> Response to Data Request #383.

<sup>263</sup> Response to Data Request #496

<sup>264</sup> Response to Data Request #612.

Verizon populates certain data fields in the LSR Order Fact table data to indicate instances where it sent more than one confirmation on a given version of a PON. Verizon uses a confirmation counter field, calculated in NMP, to indicate how many confirmations it sent on a given PON version (regardless of reason). Verizon uses a Verizon-resent counter field, also calculated in NMP, to indicate how many confirmations it resent on a given PON version because of its own error.<sup>265</sup> For example, if the confirmation count field was 4, and the Verizon-resent counter was 1, it would indicate that Verizon sent the original confirmation, resent it once because of its own error, and resent it twice more because of a CLEC request.

If Verizon resends a confirmation for a CLEC reason, NMP does not change the entry in the confirmation date/time field in the LSR Order Fact Data. However, if Verizon resends the confirmation because of its own error, then NMP replaces the original confirmation date/time with the date/time of the confirmation it sent because of its own error.<sup>266</sup>

For LSR orders, Verizon is correctly excluding confirmations that it resends for CLEC reasons. In these cases, Verizon would include only the first (original) confirmation in the numerator and denominator, and the confirmation date/time that Verizon uses would be that of the first confirmation it sent. For those instances where Verizon has resent a confirmation because of its own error, Verizon includes only the last confirmation that it sent because of its own error in the numerator and denominator. Stated differently, Verizon does not include the first confirmation, or any other confirmation, other than the last one it sent because of its own error. The confirmation date/time in this instance is that of the last version that Verizon sent because of its own error.

Verizon does not treat multiple confirmations on ASR orders in the same way. Verizon does not use an indicator in the ASR Order Fact table to identify the reason for more than one confirmation on a PON version. When Verizon extracts data from the NMP warehouse to create the ASR Order Fact table, it excludes resent confirmations for reasons other than Verizon error.<sup>267</sup> Stated differently, Verizon treats any resent confirmation in the ASR Order Fact table data as if Verizon resent it for Verizon reasons. Liberty found three PONs versions in the February ASR Order Fact table having two confirmations. During replication analysis, Liberty found that Verizon counts both in the results, which Verizon later confirmed.<sup>268</sup> Verizon’s treatment for these ASR orders is therefore different from how it treats LSR orders. To be consistent with the Guidelines, Verizon should treat ASR and LSR orders in a similar fashion. Verizon should therefore modify its algorithm for ASR orders to make it consistent with its treatment of LSR orders. Specifically, Verizon should include in the measure only the confirmation that it resent due to its own error, not the initial confirmation.

Although not specified in the Guidelines, Verizon excludes special project PONs from non-flow-through OR-1 metrics. According to Verizon, at certain times, a CLEC requests that Verizon

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<sup>265</sup> According to the response to Data Request #353, Verizon uses the EC\_Version field sent to NMP from Request Manager to identify confirmations that it sent due to a Verizon error.

<sup>266</sup> Responses to Data Requests #353, #354, and #627.

<sup>267</sup> Response to Data Request #693.

<sup>268</sup> Responses to Data Requests #499 and #692.

handle certain orders in a special manner outside of the normal process (such as when a CLEC submits a large number of orders that it wants Verizon to track separately).<sup>269</sup> Verizon instructs the CLEC to use a certain code on the LSRs so that these PONs fall out of the flow-through process and go to the NMC for manual processing. Verizon uses a metric change control notice to document the CLEC ID, the PONs to be excluded, the metrics affected, and the timeframe the exclusion is in effect. Verizon adds these PONs to a look-up table that NMP uses to assign a “B” in the test account flag field for these PONs. Verizon’s algorithms for the OR-1-03 through OR-1-10 measures then exclude PONs with this value. For ASR orders, Verizon identifies special projects using the exclusion indicator. This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

For each of the OR-1 measures, Verizon uses a separate algorithm to calculate the result for each product group. Verizon uses separate modules within the algorithms to process LSR orders and ASR orders.<sup>270</sup> Verizon calculates results for Verizon affiliates using algorithms that are essentially the same as those that it uses for CLEC results, except that it uses only those orders flagged as relating to Verizon affiliates.<sup>271</sup>

Liberty reviewed each of the algorithms that Verizon uses to calculate the OR-1 metrics. Liberty found that Verizon’s algorithms are generally consistent with the Guidelines<sup>272</sup>.

### **OR-1-01 – Average LSRC Time (Flow-Through) and OR-1-02 – % On Time LSRC (Flow-Through)**

Verizon calculates the closely related OR-1-01 and OR-1-02 measures separately by product group: (1) resale POTS/pre-qualified complex products, (2) UNE POTS Loop/pre-qualified complex/LNP products, and (3) UNE POTS Platform products.

Liberty examined the algorithms that Verizon uses to calculate the OR-1-01 and OR-1-02 measures. The formula for the OR-1-01 metric set forth in the Guidelines is as follows:

- Numerator: The sum of confirmation date and time less order submission date and time for all LSRs that flow through to the service order processor without manual intervention for the specified product
- Denominator: The total number of flow-through LSRs confirmed for the specified product.

The OR-1-02 metric has the same denominator as the OR-1-01 metric, and the formula for the OR-1-02 numerator set forth in the Guidelines is:

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<sup>269</sup> Response to Data Request #337. The CLEC is required to submit the request in writing and agree that Verizon can omit the PONs requiring special treatment from the OR-1 and OR-2 metrics.

<sup>270</sup> In some cases, Verizon has a module that is unnecessary. As Verizon noted in the response to Data Request #592, for example, CLECs order DS1 and DS3 specials only with ASRs, but the code is included for LSRs in the event that CLECs can order such products with LSRs in the future.

<sup>271</sup> Verizon affiliate and VADI LSRs have the same value in the test account flag. In response to Data Request #698, Verizon clarified that it calculates Verizon affiliate results by the CLEC ID, and separates VADI from Verizon affiliates by grouping results accordingly.

<sup>272</sup> Liberty identifies any inconsistencies it found in the findings section.

- Numerator: The number of electronic LSRCs sent where confirmation date and time less submission date and time is less than 2 hours for the specified product.

To calculate the denominator for the measures, Verizon counts the number of PONs associated with all LSRs it confirmed during the reporting month that ultimately flowed through to the service order processor without manual intervention.<sup>273</sup> Verizon counts all versions of a given PON for which it has sent a confirmation for orders submitted via Web GUI, EDI, and fax. To calculate the numerator for OR-1-01, Verizon sums the confirmation intervals for all PON versions identified in the denominator. To calculate the numerator for OR-1-02, Verizon counts the number of on-time confirmation indicators for all PON versions identified in the denominator. Verizon uses separate algorithms to calculate results for each of the three product groups.

Liberty concluded that Verizon’s method for calculating these measures conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result for the resale POTS/pre-qualified complex product group for both measures for February 2003 using the LSR Order Fact table that Verizon provided.<sup>274</sup> For OR-1-01-2320, average LSRC time, Liberty replicated Verizon’s denominator, as well as the overall result, 0.13 hours.<sup>275</sup> For OR-1-02-2320, percentage on time LSRC, Liberty replicated Verizon’s overall result, 98.87 percent.

Verizon reported no results for its affiliates for the resale POTS/pre-qualified complex product group, and Liberty confirmed that there was no relevant data for these affiliates.

**OR-1-03 – Average LSRC Time < 6 Lines (Electronic No Flow-Through) and OR-1-04 – % On Time LSRC < 6 Lines (Electronic No Flow-Through)**

Verizon calculates the closely related OR-1-03 and OR-1-04 measures separately by various resale and UNE product groups. For resale, these products are: (1) POTS/pre-qualified complex, (2) 2-wire digital services requiring loop qualification, (3) 2-wire xDSL services requiring loop qualification, and (4) Non-DS0, DS1 and DS3 Specials. For UNE, these products are: (1) POTS Loop/pre-qualified complex/LNP, (2) POTS Platform, (3) 2-wire digital services requiring loop qualification, (4) 2-wire xDSL services requiring loop qualification, (5) 2-wire xDSL Line Sharing requiring loop qualification, and (6) Non-DS0, DS1 and DS3 Specials.

Liberty examined the algorithms that Verizon uses to calculate the OR-1-03 and OR-1-04 measures. The formula for the OR-1-03 metric set forth in the Guidelines is:

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<sup>273</sup> Verizon selects PON versions with a process flow category value of 1, which indicates that the LSR flowed through to the service order processor without manual intervention.

<sup>274</sup> Response to Data Request #580. Verizon does not use ASR Order Fact data for these sub-metrics because CLECs do not order the reported products with ASRs.

<sup>275</sup> Verizon reported a denominator of 18,893, and Liberty’s result was identical.

- Numerator: The sum of confirmation date and time less order submission date and time for all orders with less than 6 lines electronically submitted, by product group
- Denominator: The total number of electronic LSRs for less than 6 lines confirmed for the specified product.

The OR-1-04 metric has the same denominator as the OR-1-03 metric, and the formula for the OR-1-04 numerator set forth in the Guidelines is:

- Numerator: The number of LSRCs for less than 6 lines sent, where confirmation date and time less submission date and time is less than the standard for the specified product.

To calculate the denominator for the measures, Verizon counts the number of PONs associated with all LSRs for less than 6 lines that it confirmed during the reporting month and that it received electronically but that did not flow through to the service order processor without manual intervention.<sup>276</sup> For specials that are ordered via ASRs and do not require facilities verification, Verizon also counts the number of PON versions received electronically that were confirmed during the reporting month.<sup>277</sup> Verizon counts all versions of a given PON for which it has sent a confirmation. To calculate the numerator for OR-1-03, Verizon sums the confirmation intervals for all PON versions identified in the denominator. To calculate the numerator for OR-1-04, Verizon counts the number of on-time confirmation indicators for all PON versions identified in the denominator.<sup>278</sup> Verizon uses separate algorithms to calculate results for each of the ten product groups.

Liberty concluded that Verizon’s method for calculating these measures conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result for the UNE POTS platform product group for both measures for February 2003 using the LSR Order Fact and ASR Order Fact tables that Verizon provided.<sup>279</sup> For OR-1-03-3140, average LSRC time, Liberty replicated Verizon’s denominator, as well as the overall result, 15.96 hours.<sup>280</sup> For OR-1-04-3140, percentage on time LSRC, Liberty replicated Verizon’s overall result, 96.81 percent.

Verizon reported no UNE POTS platform product group results for its affiliates for these measures, and Liberty confirmed that there was no relevant data for these affiliates.

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<sup>276</sup> Verizon selects PON versions with a process flow category of 3, which indicates an electronically submitted (via Web GUI or EDI) LSR for less than 6 lines.

<sup>277</sup> Verizon checks LSR Order Fact and ASR Order Fact table data for UNE Specials products. However, Verizon currently requires facility verification for ASR orders and thus Verizon does not select ASR orders for inclusion in the OR-1-03 and OR-1-04 results, which is consistent with the Guidelines.

<sup>278</sup> For ASR orders for specials, Verizon’s algorithm counts the number of PON versions with a FOC interval of 48 hours or less.

<sup>279</sup> Responses to Data Requests #429 and #580.

<sup>280</sup> Verizon reported a denominator of 11,451, and Liberty’s result was identical.

**OR-1-05 – Average LSRC Time  $\geq$  6 Lines (Electronic No Flow-Through) and OR-1-06 – % On Time LSRC  $\geq$  6 Lines (Electronic No Flow-Through)**

Verizon calculates the closely related OR-1-05 and OR-1-06 measures separately by various resale and UNE product groups. For resale, these products are: (1) POTS/pre-qualified complex, (2) 2-wire digital services requiring loop qualification, (3) 2-wire xDSL services requiring loop qualification, (4) Non-DS0, DS1 and DS3 Specials, (5) DS0 Specials, (6) DS1 Specials, and (7) DS3 Specials. For UNE, these products are: (1) POTS Loop/pre-qualified complex/LNP, (2) POTS Platform, (3) 2-wire digital services requiring loop qualification, (4) 2-wire xDSL services requiring loop qualification, (5) 2-wire xDSL Line Sharing requiring loop qualification, (6) Non-DS0, DS1 and DS3 Specials, (7) DS0 Specials, (8) DS1 Specials, and (9) DS3 Specials.

Liberty examined the algorithms that Verizon uses to calculate the OR-1-05 and OR-1-06 measures. The formula for the OR-1-05 metric set forth in the Guidelines is:

- Numerator: The sum of confirmation date and time less order submission date and time for all orders with 6 or more lines electronically submitted, by product group
- Denominator: The total number of electronic LSRs for 6 or more lines confirmed for the specified product.

The OR-1-06 metric has the same denominator as the OR-1-05 metric, and the formula for the OR-1-06 numerator set forth in the Guidelines is:

- Numerator: The number of LSRCs for 6 or more lines sent, where confirmation date and time less submission date and time is less than the standard for the specified product.

To calculate the denominator for the measures, Verizon counts the number of PONs associated with all LSRs for 6 or more lines that it confirmed during the reporting month and that it received electronically but that did not flow through to the service order processor without manual intervention.<sup>281</sup> For specials that CLECs order with ASRs requiring facilities verification, Verizon also counts the number of PON versions received electronically that it confirmed during the reporting month.<sup>282</sup> Verizon counts all versions of a given PON for which it has sent a confirmation. To calculate the numerator for OR-1-05, Verizon sums the confirmation intervals for all PON versions identified in the denominator. To calculate the numerator for OR-1-06, Verizon counts the number of on-time confirmation indicators for all PON versions identified in the denominator.<sup>283</sup> Verizon uses separate algorithms to calculate results for each of the sixteen product groups.

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<sup>281</sup> Verizon selects PON versions with a process flow category value of 5, which indicates an electronically submitted (via Web GUI or EDI) LSR for 6 or more lines.

<sup>282</sup> Verizon checks LSR Order Fact and ASR Order Fact table data for UNE Specials products. Verizon currently requires facility verification for ASR orders and any electronic ASR orders for these products would be included in the OR-1-05 and OR-1-06 results.

<sup>283</sup> For ASR orders for specials, Verizon’s algorithm counts the number of PON versions with a FOC interval of 72 hours or less.



Liberty concluded that Verizon's method for calculating these measures conforms to the Guidelines.

Liberty found that there was an error in the algorithm for the resale special DS3 product (OR-1-06-2213). Verizon selects orders with less than 6 lines rather than with 6 or more lines. Liberty recommends that Verizon correct this algorithm.<sup>284</sup>

Liberty recalculated the CLEC aggregate result for the UNE special DS1 product for both measures for February 2003 using the LSR Order Fact and ASR Order Fact tables that Verizon provided.<sup>285</sup> For OR-1-05-3211, average LSRC time, Liberty replicated Verizon's denominator, as well as the overall result, 16.85 hours.<sup>286</sup> For OR-1-06-3211, percentage on time LSRC, Liberty replicated Verizon's overall result, 98.95 percent.

Verizon reported no results for UNE DS1 specials for its affiliates for these measures, and Liberty confirmed that there was no relevant data for these affiliates.

**OR-1-07 – Average LSRC Time < 6 Lines (Fax) and OR-1-08 – % On Time LSRC < 6 Lines (Fax)**

Verizon calculates the closely related OR-1-07 and OR-1-08 measures separately by various resale and UNE product groups. For resale, these products are: (1) POTS/pre-qualified complex, (2) 2-wire digital services requiring loop qualification, (3) 2-wire xDSL services requiring loop qualification, and (4) Non-DS0, DS1 and DS3 Specials. For UNE, these products are: (1) POTS Loop/pre-qualified complex/LNP, (2) POTS Platform, (3) 2-wire digital services requiring loop qualification, (4) 2-wire xDSL services requiring loop qualification, and (5) Non-DS0, DS1 and DS3 Specials.

Liberty examined the algorithms that Verizon uses to calculate the OR-1-07 and OR-1-08 measures. The formula for the OR-1-07 metric set forth in the Guidelines is:

- Numerator: The sum of confirmation date and time less order submission date and time for all orders with less than 6 lines submitted by fax, by product group
- Denominator: The total number of faxed LSRs for less than 6 lines confirmed for the specified product.

The OR-1-08 metric has the same denominator as the OR-1-07 metric, and the formula for the OR-1-08 numerator set forth in the Guidelines is:

- Numerator: The number of faxed LSRCs for less than 6 lines sent, where confirmation date and time less submission date and time is less than the standard for the specified product.

To calculate the denominators for the measures, Verizon counts the number of PONs associated with all LSRs for less than 6 lines received via fax that it confirmed during the reporting

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<sup>284</sup> Liberty discovered this error in the December 2002 version of the MBR, and confirmed that it was still incorrect in the February 2003 version.

<sup>285</sup> Responses to Data Requests #429 and #580.

<sup>286</sup> Verizon reported a denominator of 191, and Liberty's result was identical.

month.<sup>287</sup> For specials that are ordered via ASRs and do not require facilities verification, Verizon also counts the number of PON versions received via fax that were confirmed during the reporting month.<sup>288</sup> Verizon counts all versions of a given PON for which it has sent a confirmation. To calculate the numerator for OR-1-07, Verizon sums the confirmation intervals for all PON versions identified in the denominator. To calculate the numerator for OR-1-08, Verizon counts the number of on time confirmation indicators for all PON versions identified in the denominator.<sup>289</sup> Verizon uses separate algorithms to calculate results for each of the nine product groups.

Liberty concluded that Verizon’s method for calculating these measures conforms to the Guidelines.

Verizon reported no results for CLECs or for Verizon affiliates for these measures for the February 2003 reporting month. Liberty reviewed the LSR and ASR Order Fact table data and verified that Verizon had no fax orders.<sup>290</sup>

**OR-1-09 – Average LSRC Time  $\geq$  6 Lines (Fax) and OR-1-10 – % On Time LSRC  $\geq$  6 Lines (Fax)**

Verizon calculates the closely related OR-1-09 and OR-1-10 measures separately by various resale and UNE product groups. For resale, these products are: (1) POTS/pre-qualified complex, (2) 2-wire digital services requiring loop qualification, (3) 2-wire xDSL services requiring loop qualification, (4) Non-DS0, DS1 and DS3 Specials, (5) DS0 Specials, (6) DS1 Specials, and (7) DS3 Specials. For UNE, these products are: (1) POTS Loop/pre-qualified complex/LNP, (2) POTS Platform, (3) 2-wire digital services requiring loop qualification, (4) 2-wire xDSL services requiring loop qualification, (5) Non-DS0, DS1 and DS3 Specials, (6) DS0 Specials, (7) DS1 Specials, and (8) DS3 Specials.

Liberty examined the algorithms that Verizon uses to calculate the OR-1-09 and OR-1-10 measures. The formula for the OR-1-09 metric set forth in the Guidelines is:

- Numerator: The sum of confirmation date and time less order submission date and time for all orders with 6 or more lines submitted by fax, by product group
- Denominator: The total number of faxed LSRs for 6 or more lines confirmed for the specified product.

The OR-1-10 metric has the same denominator as the OR-1-09 metric, and the formula for the OR-1-10 numerator set forth in the Guidelines is:

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<sup>287</sup> Verizon selects PON versions with a process flow category value of 2, which indicates a faxed LSR for less than 6 lines.

<sup>288</sup> Verizon checks LSR Order Fact and ASR Order Fact table data for UNE Specials products. However, Verizon currently requires facility verification for ASR orders and thus does not select ASR orders for inclusion in the OR-1-07 and OR-1-08 results.

<sup>289</sup> For ASR orders for specials, Verizon’s algorithm counts the number of PON versions with a FOC interval of 72 hours or less.

<sup>290</sup> Responses to Data Requests #429 and #580.

- Numerator: The number of faxed LSRCs for 6 or more lines sent, where confirmation date and time less submission date and time is less than the standard for the specified product.

To calculate the denominator for the measures, Verizon counts the number of PONs associated with all LSRs for 6 or more lines received via fax that were confirmed during the reporting month.<sup>291</sup> For specials that CLECs order via ASRs and that require facilities verification, Verizon also counts the number of PON versions received via fax that it confirmed during the reporting month.<sup>292</sup> Verizon counts all versions of a given PON for which it has sent a confirmation. To calculate the numerator for OR-1-09, Verizon sums the confirmation intervals for all PON versions identified in the denominator. To calculate the numerator for OR-1-10, Verizon counts the number of on time confirmation indicators for all PON versions identified in the denominator.<sup>293</sup> Verizon uses separate algorithms to calculate results for each of the fifteen product groups.

Liberty concluded that Verizon's method for calculating these measures conforms to the Guidelines.

Verizon reported no results for these measures for CLECs or for Verizon affiliates for the February 2003 reporting month. Liberty reviewed the LSR and ASR Order Fact table data and verified that Verizon had no fax orders.<sup>294</sup>

### **Trunk Products – OR-1-11 to OR-1-13 and OR-1-19**

#### **OR-1-11 – Average Firm Order Confirmation (FOC) Time and OR-1-12 – % On Time FOC**

For interconnection trunks, the Guidelines define confirmation response time as the amount of elapsed time (in business days) between the time that Verizon receives a valid ASR and the time it distributes a FOC. The Guidelines state that Verizon should restart the received date for each ASR supplement. Verizon treats each version of a PON as a new order request, and there may be more than one confirmation on the same PON number. Unlike the other OR-1 measures, Verizon forms the OR-1-11 and OR-1-12 measures on the basis of service orders, not PONs, and there often are multiple service orders related to a single PON. The submission and confirmation dates for the service orders are the same as those of the PON to which they relate.

The OR-1-11 and OR-1-12 measures relate to orders with 192 or fewer trunks not designated as projects. Verizon includes both completed and cancelled orders in the measure. Verizon does not

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<sup>291</sup> Verizon selects PON versions with a process flow category of 4, which indicates a faxed LSR for 6 or more lines.

<sup>292</sup> Verizon checks LSR Order Fact and ASR Order Fact table data for UNE Specials products. Verizon currently requires facility verification for ASR orders and any electronic ASR orders for these products would be included in the OR-1-09 and OR-1-10 results.

<sup>293</sup> For ASR orders for specials, Verizon's algorithm counts the number of PON versions with a FOC interval of 96 hours or less.

<sup>294</sup> Responses to Data Requests #429 and #580.

include pending orders.<sup>295</sup> Verizon should seek a clarification to the Guidelines to specify that it includes in these measures both cancelled and completed service orders. The language in the Guidelines, which state that the metric measures service orders completed between the measured dates, is not clear. Including cancelled orders is appropriate, since the OR-1 metrics measure order confirmation timeliness, regardless of whether Verizon later cancels a service order.

The glossary to the Guidelines defines projects as any CLEC-designated request for a new trunk group, an augment for more than 384 trunks, complex (E911 or directory assistance) requests, or requests out of the ordinary requiring special coordination, such as rearrangements. The Guidelines indicate that the measure pertains only to forecasted trunks. Verizon includes only forecasted trunks and requests for augmented trunks in the measures, and includes only those ASRs with 192 or fewer trunks.<sup>296</sup> Verizon indicated that CLEC trunk service included in the measure includes both one-way and two-way trunk products.<sup>297</sup> Verizon specifically excludes complex requests, consistent with the Guidelines.<sup>298</sup>

Verizon extracts ordering data from the NMP warehouse to create the Trunk Fact table used by Verizon’s metric algorithms. The key data fields in the Trunk Fact table for the OR-1-11 and OR-1-12 measures are CLEC ID, PON, service order number, project number, service type (CLEC, reciprocal, etc.), ASR quantity, source type (electronic or fax/mail), order type (new or augmented), forecast indicator (Y or N), order status (completed, cancelled, or pending), order status date, response type, FOC interval, exclusion indicator, and inclusion indicator.

Verizon uses the project number field to exclude projects from the measure. Verizon excludes those service orders that have a Verizon project number (rather than a blank).<sup>299</sup> Verizon uses the service type field to select only CLEC orders, and excludes reciprocal,<sup>300</sup> IEC (inter-exchange carrier), and wireless trunk requests from the measure.<sup>301</sup>

Verizon uses the order status date, which is the date that Verizon updates the Trunk Fact table with a completion date for the order, to select service orders to be included in the reporting month.<sup>302</sup> In most cases, the order status date is the same as the completion date, but Liberty found that for about 10 percent of the orders, the order status date was a day or more later. Verizon should use the actual completion date, rather than the order status date, to select orders to be included in the measure for a given month. Liberty also found that in several cases, the order status date was more than a month later than the actual completion date. Verizon should therefore ensure that it updates the information on all service orders completed in the month before extracting the data from NMP so that it can accurately calculate the measure using all completed orders. Liberty recognizes, however, that Verizon does not assign a completion date

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<sup>295</sup> Responses to Data Requests #600 and #601.

<sup>296</sup> Response to Data Request #746.

<sup>297</sup> Responses to Data Requests #410 and #595.

<sup>298</sup> Response to Data Request #747.

<sup>299</sup> Responses to Data Requests #597 and #599.

<sup>300</sup> The reciprocal trunk product is outbound trunk service from Verizon that carries originating Verizon customer traffic to the CLEC (Response to Data Request #594).

<sup>301</sup> Response to Data Request #417.

<sup>302</sup> Responses to Data Requests #750 and #751.

for cancelled orders, and that using the order status date for cancelled orders is a reasonable convention.

Verizon uses the response type field to screen out ASRs for which the CLEC requested no response. CLECs can request a FOC, a FOC and design layout record, or neither.<sup>303</sup> NMP calculates the FOC interval as the number of business days between the date that Verizon received the ASR and the date it sent the FOC. Liberty reviewed the calculation of this interval and found that Verizon calculated it properly.

NMP sets the exclusion indicator to Y for test CLEC IDs, Verizon affiliate IDs, and VADI.<sup>304</sup> Verizon also uses an inclusion indicator, and selects only those service orders with a value of Y. All initial confirmations have an inclusion indicator of Y. Verizon uses a manual process to look for any resent confirmation on the same PON version, and marks the service orders associated with it with a Y if Verizon resent it due to Verizon error (and therefore includes them in the measure). Verizon leaves the indicator blank for service orders associated with any PON version with a resent confirmation due to CLEC reasons (and thus excludes them). Verizon also uses a blank in the inclusion indicator field to remove service orders with clerical input errors.<sup>305</sup>

Liberty concluded that Verizon's definitions for a key data field used to calculate the metrics is not consistent with the Guidelines. Verizon should use the order completion date, rather than the order status date, to select orders to be included in the measure.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon calculates each sub-metric result by individual CLEC and Verizon affiliate ID and by exclusion indicator (which NMP sets to Y for test CLEC, VADI, and Verizon affiliates on the basis of a look-up table), and aggregates them accordingly in the NMP reporting system.<sup>306</sup> Thus Verizon correctly excludes test CLEC and Verizon affiliate orders from the measures.

As part of its review of FOC intervals, Liberty examined how Verizon excluded weekend and holiday hours from elapsed times. Liberty found that Verizon properly applied these exclusions.

The Guidelines state that Verizon should exclude from OR-1 metrics confirmations that it resends for other than Verizon error. As noted above, Verizon excludes resent confirmations for CLEC reasons using the inclusion indicator. Although not addressed in the Guidelines, Verizon also excludes confirmations associated with service orders that have clerical errors that affect the FOC. During replication, Liberty found that Verizon had excluded three trunk service orders from the results because all three had receipt dates that were earlier than the rejection dates, resulting in a negative FOC.<sup>307</sup> The exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

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<sup>303</sup> Response to Data Request #598.

<sup>304</sup> Response to Data Request #745.

<sup>305</sup> Responses to Data Requests #596 and #748.

<sup>306</sup> Response to Data Request #612.

<sup>307</sup> Verizon excluded three of 35 service orders from the measure for this reason.

Liberty examined the algorithms that Verizon uses to calculate the OR-1-11 and OR-1-12 measures. The formula for the OR-1-11 metric set forth in the Guidelines is:

- Numerator: The sum of order confirmation date and time less submission date and time for trunk orders
- Denominator: The total number of orders confirmed with 192 or fewer trunks that are not designated projects.

The OR-1-12 metric has the same denominator as the OR-1-11 metric, and the formula for the OR-1-12 numerator set forth in the Guidelines is:

- Numerator: The number of orders confirmed within 10 business days.

To calculate the denominator for the measures, Verizon counts the number of service order numbers related to confirmed CLEC ASRs for 192 or fewer augmented trunks. Verizon selects those service orders with an order status date within the reporting month.<sup>308</sup> To calculate the numerator for OR-1-11, Verizon sums the FOC intervals for the service orders identified in the denominator. To calculate the numerator for OR-1-12, Verizon counts the number of service orders with a FOC interval within the standard interval, *i.e.*, 10 business days for electronically submitted ASRs, and 11 business days for manual ASRs.<sup>309</sup>

Liberty recalculated the CLEC aggregate result for both measures for February 2003 using the Trunk Fact table that Verizon provided.<sup>310</sup> For OR-1-11-5020, average FOC time, Liberty replicated Verizon’s denominator, as well as the overall result, 4.19 business days.<sup>311</sup> For OR-1-12-5020, percentage on time FOC, Liberty replicated Verizon’s overall result, 96.88 percent.

Verizon reported no trunk results for its affiliates for these measures, and Liberty confirmed that there was no relevant data for these affiliates.

### **OR-1-13 – % On Time Design Layout Record (DLR)**

The OR-1-13 sub-metric measures the percentage of design layout records (DLRs) that Verizon delivers by the due date. Unlike other OR metrics, Verizon excludes disconnect orders from OR-1-13, since there are no DLRs associated with them. Verizon indicated that CLEC trunk service included in the measure includes both one-way and two-way trunk products.<sup>312</sup> Like the OR-1-11 and OR-1-12 metrics, OR-1-13 measures service orders rather than PONs. Verizon does not exclude projects or new trunks from the OR-1-13 results.<sup>313</sup>

Verizon extracts ordering data from the NMP warehouse to create the Trunk Fact table used by Verizon’s metrics algorithm. The key data fields in the Trunk Fact table for the OR-1-13 measure are CLEC ID, PON, service order number, service type (CLEC, reciprocal, etc.), order

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<sup>308</sup> Response to Data Request #601.

<sup>309</sup> Response to Data Request #606.

<sup>310</sup> Response to Data Requests #428.

<sup>311</sup> Verizon reported a denominator of 32, and Liberty’s result was identical.

<sup>312</sup> Responses to Data Requests #410 and #595.

<sup>313</sup> Response to Data Request #746.

type (new or augmented), DLR due date, DLR complete date, order status (completed, cancelled, or pending), order status date, response type, activity type, exclusion indicator, and inclusion indicator.

Verizon uses the service type field to select only CLEC orders, and excludes reciprocal,<sup>314</sup> IXC (inter-exchange carrier), and wireless trunk requests from the measure.<sup>315</sup> The DLR due date is the date that the DLR is due as recorded in the TIRKS system. The DLR actual date is the completion date on the DLR record.

Verizon includes orders with a completed status in the results, and includes cancelled orders only if they have a DLR complete date.<sup>316</sup> Verizon uses the order status date, which is the date that Verizon updates the Trunk Fact table with a completion date for the order, to select service orders to be included in the reporting month.<sup>317</sup> As discussed under OR-1-11 and OR-1-12, Verizon should use the order completion date rather than the order status date. Verizon records information about the DLR at the same time that it records FOC information, which is when the order is completed or cancelled.<sup>318</sup>

Verizon uses the response type field to screen out service orders associated with ASRs for which the CLEC requested no response or only a FOC. CLECs can request a FOC, a FOC and design layout record, or neither.<sup>319</sup> NMP sets the exclusion indicator to Y for test CLEC IDs, Verizon affiliate IDs, and VADI. Verizon uses the inclusion indicator, which NMP assigns, to flag the orders that require a DLR.<sup>320</sup> Liberty reviewed the Trunk Fact data and found three orders where the CLEC requested a DLR, but there were no DLR due dates (or actual dates). Verizon indicated that this omission was the result of an operational procedural error, in that it did not send the DLRs through the TIRKS system.<sup>321</sup> Verizon’s algorithm appropriately treats these orders as misses in the numerator, since there is no record of when (and if) the DLR was completed.

Liberty concluded that Verizon’s definition for a key data field used to calculate the metrics is not consistent with the Guidelines. Verizon should use the order completion date, rather than the order status date, to select orders to be included in the measure.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon calculates results by individual CLEC and Verizon affiliate ID and by exclusion indicator (which NMP sets to Y for test CLEC, VADI, and Verizon affiliates on the basis of a look-up table), and

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<sup>314</sup> The reciprocal trunk product is outbound trunk service from Verizon that carriers originating Verizon customer traffic to the CLEC (Response to Data Request #594).

<sup>315</sup> Response to Data Request #417.

<sup>316</sup> Responses to Data Requests #755 and #756. If Verizon cancelled the order before it completed the DLR, the order would not be included in the measure.

<sup>317</sup> Responses to Data Requests #750 and #751.

<sup>318</sup> Response to Data Request #752.

<sup>319</sup> Response to Data Request #598.

<sup>320</sup> Response to Data Request #754.

<sup>321</sup> Response to Data Request #753.

aggregates them accordingly in the NMP reporting system.<sup>322</sup> Thus Verizon correctly excludes test CLEC and Verizon affiliate orders from the measure.

Liberty examined the algorithm that Verizon uses to calculate the OR-1-13 measure. The formula for the OR-1-13 metric set forth in the Guidelines is:

- Numerator: The number of design layout records completed on or before the design layout record due date in TIRKS
- Denominator: The total number of design layout records completed.

To calculate the denominator for the measure, Verizon counts the number of service order numbers related to trunk ASRs for which the CLEC requested a DLR. Verizon selects those service orders with an order status date within the reporting month.<sup>323</sup> To calculate the numerator for OR-1-13, Verizon counts the number of orders where the DLR complete date is less than or equal to the DLR due date.

Liberty recalculated the CLEC aggregate result for February 2003 using the Trunk Fact table that Verizon provided.<sup>324</sup> For OR-1-13-5020, percentage on time DLR, Liberty replicated Verizon’s denominator, as well as the overall result, 68.97 percent.<sup>325</sup>

### **OR-1-19 – % On Time Response - Request for Inbound Augment Trunks**

Verizon does not calculate the OR-1-19 measure in NMP, but rather calculates the results manually. The metric pertains to requests for inbound augment trunks. Verizon stated that in certain cases a CLEC asks Verizon to do an engineering review of its facilities, referred to as a trunk group service request (TGSR), because the CLEC believes additional facilities are needed. The CLEC sends a TGSR to Verizon via fax or email. The OR-1-19 metric measures only those requests submitted via email. Verizon measures the number of responses to these requests that it provides within the standard interval. Verizon reports results for two product groups, 192 or fewer trunks and greater than 192 trunks. Verizon does not exclude projects from the measure. Verizon does not include TGSRs for disconnects in the results, nor does it include TGSRs cancelled by the CLEC prior to Verizon’s response (it does however include those cancelled after Verizon’s response). The standard interval for requests for 192 or fewer trunks is 10 business days; the interval for requests for more than 192 trunks is a negotiated one, although Verizon holds such requests to the same 10-business day standard.<sup>326</sup>

Verizon provided documentation for its OR-1-19 process.<sup>327</sup> After the CLEC emails the TGSR to Verizon, the Verizon administrator reviews the TGSR and forwards it to the trunk capacity management (TCM) group. The TCM group reviews the request and enters a Y or N to indicate

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<sup>322</sup> Response to Data Request #612.

<sup>323</sup> Response to Data Request #601.

<sup>324</sup> Response to Data Requests #428.

<sup>325</sup> Verizon reported a denominator of 29, and Liberty’s result was identical.

<sup>326</sup> Response to Data Request #759.

<sup>327</sup> Materials provided by Verizon for Interview #22.



if the request was accepted or not, and enters a recommended trunk quantity. Verizon then forwards the completed TGSR to the CLEC.

The TGSR metrics administrator prepares a weekly and monthly log of TGSR requests and responses. The Verizon personnel responsible for OR-1-19 measure prepares an Excel spreadsheet containing data on each TGSR and computes the metric results, which are then converted into an ASCII file and sent to the NMP reporting system for release.

The formula for the OR-1-19 metric set forth in the Guidelines is:

- Numerator: The number of requests for inbound (Verizon to CLEC) augment trunks submitted via e-mail TGSR where the response is provided within the standard interval
- Denominator: The total number of requests for inbound (Verizon to CLEC) augment trunks submitted via e-mail TGSR.

Liberty examined the method that Verizon uses to calculate the OR-1-19 measure. To calculate the denominator, Verizon selects all requests that had a response date within the reporting month.<sup>328</sup> To calculate the numerator, Verizon counts the number of requests identified in the denominator that have response intervals within the standard. Verizon calculates the response interval as the number of business days between the time that it receives the TGSR and the date that it provides a response to the CLEC. Verizon counts orders received after 2 p.m. as having been received the next business day. This convention is acceptable, but Verizon should seek to clarify this issue in the Guidelines.

For requests for 192 or fewer trunks and requests for more than 192 trunks, Verizon counts the TGSR response as on time if the response interval is 10 business days or less.<sup>329</sup>

Liberty concluded that Verizon's method for calculating these measures conforms to the Guidelines.

Verizon reported no results for the two product groups for February, and Liberty confirmed with Verizon that it had no such requests.<sup>330</sup>

### **3. Findings and Recommendations**

**Verizon's method for treating resent ASR confirmations in OR-1 is different from the method it uses for resent LSR confirmations, and does not conform to the Guidelines.**

Verizon's current method for counting both the initial and resent confirmation in cases where it resends the FOC due to its own error is different from how it treats LSR orders in the same situation, and is not consistent with the Guidelines. Liberty recommends that Verizon modify its

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<sup>328</sup> Response to Data Request #760.

<sup>329</sup> Response to Data Request #759.

<sup>330</sup> Response to Data Request #758.

OR-1 algorithms that involve ASR orders to include only the subsequent confirmations that Verizon resends due to its own error.

**Verizon’s exclusion of special project orders in OR-1 is reasonable, but not consistent with the Guidelines.**

Verizon is currently excluding orders associated with special projects from the calculation of the OR-1-01 through OR-1-10 metrics. This exclusion is appropriate and Verizon should seek a clarification to the Guidelines to reflect it.

**There is an error in Verizon’s algorithm for the resale DS3 product results in OR-1-06.**

Verizon’s algorithm for the resale DS3 product result in OR-1-06 includes orders with less than six lines rather than orders that are greater than six lines. Liberty recommends that Verizon fix this error in its algorithm.

**Verizon’s exclusion of trunk service orders with negative FOC intervals is reasonable, but not documented in the Guidelines.**

Verizon currently excludes any trunk service order from the OR-1-11 and OR-1-12 metrics that has a clerical error that affects the calculation of the FOC. This convention is acceptable, however, Liberty recommends that Verizon seek a clarification to the Guidelines.

**Verizon’s method for selecting orders for the reporting month for the OR-1-11, OR-1-12, and OR-1-13 measures is not consistent with the Guidelines.**

Verizon selects trunk service orders to be included in these measures for the reporting month by the order status date, rather than the order completion date. Verizon should use the completion date. Verizon should also update its administrative procedures to ensure that it records the completion dates for all orders completed during the month in the Trunk Fact data before it extracts the data from NMP to calculate the results. Liberty recognizes, however, that Verizon does not assign a completion date for cancelled orders, and that using the order status date for cancelled orders is a reasonable convention.

Verizon should also seek a clarification to the Guidelines to indicate that it includes both completed and cancelled service orders in the metrics.

**Verizon’s treatment of trunk group service requests (TGSRs) that it receives after 2 p.m. in OR-1-19 is reasonable, but not documented in the Guidelines.**

Verizon currently treats all TGSRs that it receives after 2 p.m. as having been received the next business day. This convention is acceptable; however, Liberty recommends that Verizon seek a clarification to the Guidelines to reflect this cutoff time.

## **C. OR-2, Reject Timeliness**

### **1. Background**

The metrics within OR-2 report Verizon’s performance in issuing order rejections on a timely basis. There are 12 sub-metrics within OR-2, half of which measure the average amount of time between Verizon’s receipt of a LSR or ASR and its distribution of a service order reject or query, and the other half of which measure the percentage of order rejections that Verizon sends on time.

The OR-2-01 through OR-2-10 sub-metrics focus on distinct categories of resale and UNE orders, *i.e.*, orders submitted electronically that flow through to Verizon’s backend systems, orders submitted electronically that require manual handling, and orders submitted manually via fax or mail. The Guidelines define additional disaggregation of these categories on the basis of number of lines on the order. Verizon reports each of these sub-metrics for a specified number of distinct product groups, such as resale POTS/pre-qualified complex and UNE specials. The OR-2-11 and OR-2-12 sub-metrics focus on Verizon’s performance in issuing rejections on orders for CLEC to Verizon interconnection trunks. In all, there are 84 individual reported results in this measure group. Of these, 24 are included in Verizon’s IP.

The exclusions that apply to OR-2 are:

- Verizon test orders
- Duplicate rejects, which are rejects issued against a unique Purchase Order Number (PON) that are identical and subsequent to the first reject
- Weekend and holiday hours for non-flow-through orders
- Planned SOP downtime for flow-through orders
- Verizon affiliate data from CLEC results.

Verizon reports these results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. For those metrics within OR-2 that measure average reject time (OR-2-01, 2-03, 2-05, 2-07, 2-09, and 2-11), there is no standard. For those that measure the percentage on time rejections (OR-2-02, 2-04, 2-06, 2-08, 2-10, and 2-12), the standard is 95 percent within a standard interval that varies by product, size of order (*i.e.*, number of lines or trunks), whether the order was submitted electronically, and whether the order flowed through or required manual handling.

## 2. Analysis and Evaluation

### Resale and UNE Products – OR-2-01 through OR-2-10

For resale and UNE products, the Guidelines define reject response time as the amount of elapsed time (in hours and minutes) between the time that Verizon receives a LSR or ASR and the time it distributes a service order reject or query. For the OR-2 metrics, Verizon treats each version of a PON as a new order request, and there may be more than one rejection on the same PON number.

Verizon extracts ordering data from the NMP warehouse to create the LSR Order Fact and ASR Order Fact tables used by Verizon’s metric algorithms. The key data fields in the LSR Order Fact table for the OR-2 measures are CLEC ID, PON, PON version, receipt date/time, rejection date/time, process flow category, order type (resale, UNE loop, or UNE platform), service order class (such as UNE POTS platform or specials), test account flag, rejection interval, and on time rejection indicator.

NMP sets the test account flag to Y for test CLEC, VADI, and Verizon affiliate IDs.<sup>331</sup> NMP calculates the rejection interval as the difference between the order receipt date/time and the date/time of the rejection. NMP assigns a value of Y to the on time rejection indicator if the rejection interval is within the standard interval for the given product (service order class). Liberty reviewed the elapsed time calculation used to determine the rejection interval and the assignment of the indicator and concluded that NMP determined them properly.

The key data fields in the ASR Order Fact table for the OR-2 measures are CLEC ID, PON, PON version, receipt date/time, rejection date/time, product type (*e.g.*, DS0, DS1), activity type (N, C, or D), service order type (manual or electronic), facilities indicator, exclusion indicator, rejection interval, and rejection inclusion indicator. As discussed under OR-1, Verizon assigns all ASR orders (which are all for specials products) a facilities indicator value of Y, indicating that facility verification is required (and thus these orders are included in the results for orders with 6 or more lines). NMP sets the exclusion indicator to Y for test CLEC IDs, Verizon affiliate IDs, VADI, and special projects, as well as PARTS orders.<sup>332</sup>

NMP calculates the ASR rejection interval as the elapsed time between the order receipt date/time and the date/time of the rejection. Liberty examined the ASR Order Fact table data that Verizon provided, and found that, in almost every case, there was only a date, but no time, for the rejection. Verizon indicated that in these cases, it would use a default time of 00:00.<sup>333</sup> This convention leads to calculated rejection intervals that are shorter than they should be, assuming only that Verizon did not send all these rejections at 12:00 a.m. on the given date. Verizon should be uniformly recording the rejection time so that it can properly calculate the rejection interval for ASR orders. Aside from this matter, Liberty found that Verizon calculated correctly the rejection interval. Verizon compares this calculated interval to the standard for the product group within the metrics algorithm.

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<sup>331</sup> Response to Data Request #383.

<sup>332</sup> Responses to Data Requests #419, #496, #699, and #700.

<sup>333</sup> Response to Data Request #493.

Verizon uses the rejection inclusion indicator to flag the PON versions that it includes in the metrics. NMP sets the field to Y for the first rejection on a given PON version; any subsequent rejection on that same PON version would have a rejection indicator value of N and not be included in the metric. Liberty verified that NMP determined correctly the rejection inclusion indicator for all ASR data provided.

Liberty concluded that Verizon’s definitions for the key data fields used to calculate the metrics are consistent with the Guidelines.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon excludes test orders and Verizon affiliate LSR orders by a logic step in its algorithm that screens out records that have a test account flag, which NMP calculates on the basis of a look-up table of test CLEC IDs, VADI, and Verizon affiliate IDs.<sup>334</sup> For ASR orders, Verizon calculates each sub-metric result by individual CLEC and Verizon affiliate ID and by exclusion indicator (which NMP sets to Y for test CLEC, VADI, and Verizon affiliates on the basis of a look-up table),<sup>335</sup> and aggregates them accordingly in the NMP reporting system.<sup>336</sup>

As part of its review of rejection intervals for LSR and ASR orders, Liberty examined how Verizon excluded weekend and holiday hours from elapsed times for non-flow-through orders, and scheduled SOP downtimes from elapsed times for flow-through orders. Liberty found that Verizon properly applied these exclusions.

The Guidelines specify that Verizon exclude from OR-2 metrics duplicate rejections against a unique PON (the combination of CLEC ID, PON, and version number). Verizon uses a different approach for LSR and ASR orders. For LSR orders, Verizon excludes duplicates in the data used to calculate the metrics; for ASR orders, Verizon excludes the duplicates within the metrics algorithm. There are instances in which Verizon’s systems send multiple rejections on the same PON version. During the procedure that Verizon uses to move data from NMP to the LSR Order Fact table, NMP will only place the first rejection in the LSR Order Fact table.<sup>337</sup> Thus there are no duplicate rejections in the LSR data. Verizon uses the rejection inclusion indicator to eliminate duplicate rejects within the metrics algorithm for ASR orders. Verizon is thus appropriately excluding duplicate rejection against the same unique PON.

There are, however, subtle differences in the way that Verizon treats rejections for the purposes of the OR-2 metrics, and these differences occur when Verizon has issued both a rejection and a confirmation against the same PON version. As noted previously, Verizon sets the rejection inclusion indicator to Y for the first rejection on a given PON version for ASR orders, and any subsequent reject on that same PON version would have an indicator value of N. However, if Verizon had already sent a confirmation on a given PON version, then NMP would set the rejection indicate to N, even if it was the first rejection (but if Verizon sent the rejection prior to

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<sup>334</sup> Response to Data Request #383.

<sup>335</sup> Response to Data Request #496.

<sup>336</sup> Response to Data Request #612.

<sup>337</sup> Response to Data Request #608 (initial and supplemental).

the confirmation, NMP sets the indicator to Y).<sup>338</sup> For ASR orders, Verizon does not count rejections on a given PON version that it sends after a confirmation.<sup>339</sup> For LSR orders, Verizon counts the rejection regardless of whether the order also had a confirmation. To be consistent with the Guidelines, Liberty recommends that Verizon treat both ASR and LSR orders in the same fashion for such cases.

As noted for OR-1, although not specified in the Guidelines, Verizon excludes special project PONs from non-flow-through OR-2 metrics, in particular OR-2-03 through OR-2-10. Verizon uses a value of “B” in the test account flag field to indicate special project PONS; NMP assigns this value on the basis of a look-up table of special project PONs. For ASR orders, Verizon identifies special projects using the exclusion indicator. This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

For each of the OR-2 measures, Verizon uses a separate algorithm to calculate the result for each product group. If Verizon uses ASR data for a given result, then Verizon uses a separate module with logic for ASR and for LSR orders.<sup>340</sup> Verizon calculates results for Verizon affiliate using algorithms that are essentially the same as those that it uses for CLEC results, except that it uses only those orders flagged as relating to Verizon affiliates.<sup>341</sup>

Liberty reviewed each of the algorithms that Verizon uses to calculate the OR-2 metrics. Liberty found that Verizon’s algorithms are generally consistent with the Guidelines.<sup>342</sup>

#### **OR-2-01 – Average LSR Reject - Time (Flow-Through) and OR-2-02 – % On Time LSR Reject (Flow-Through)**

Verizon calculates the closely related OR-2-01 and OR-2-02 measures separately by product group: (1) resale POTS/pre-qualified complex products, (2) UNE POTS Loop/pre-qualified complex/LNP products, and (3) UNE POTS Platform products.

Liberty examined the algorithms that Verizon uses to calculate the OR-2-01 and OR-2-02 measures. The formula for the OR-2-01 metric set forth in the Guidelines is as follows:

- Numerator: The sum of reject date and time less order submission date and time for all orders that flow through to the service order processor without manual intervention for the specified product
- Denominator: The total number of flow-through LSRs rejected for the specified product.

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<sup>338</sup> Response to Data Request #615.

<sup>339</sup> Response to Data Request #497. Liberty identified one PON version in the ASR data that had a rejection after a confirmation.

<sup>340</sup> In some cases, Verizon has a module that is unnecessary. As Verizon noted in the response to Data Request #592, for example, CLECs order DS1 and DS3 specials only with ASRs, but the code is included for LSRs in the event future products can be ordered via LSRs.

<sup>341</sup> Verizon affiliate and VADI LSRs have the same value in the test account flag. In response to Data Request #698, Verizon clarified that it calculates Verizon affiliate results by the CLEC ID, and separates VADI from Verizon affiliates by grouping results accordingly.

<sup>342</sup> Liberty identifies any inconsistencies in the findings section.

The OR-2-02 metric has the same denominator as the OR-2-01 metric, and the formula for the OR-2-02 numerator set forth in the Guidelines is:

- Numerator: The number of electronic rejects sent, where reject date and time less submission date and time is less than 2 hours for the specified product.

To calculate the denominator for the measures, Verizon counts the number of PONs associated with all LSRs it rejected during the reporting month that ultimately flowed through to the service order processor without manual intervention.<sup>343</sup> Verizon counts all versions of a given PON for which it has sent a rejection for orders submitted via Web GUI, EDI, and fax. To calculate the numerator for OR-2-01, Verizon sums the rejection intervals for all PON versions identified in the denominator. To calculate the numerator for OR-2-02, Verizon counts the number of on-time rejection indicators for all PON versions identified in the denominator. Verizon uses separate algorithms to calculate results for each of the three product groups.

Liberty concluded that Verizon’s method for calculating these measures conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result for the UNE POTS loop/pre-qualified complex/LNP product group for both measures for February 2003 using the LSR Order Fact table that Verizon provided.<sup>344</sup> For OR-2-01-3331, average LSR reject time, Liberty replicated Verizon’s denominator, as well as the overall result, 2.69 hours.<sup>345</sup> For OR-2-02-3331, percentage on time LSR reject, Liberty replicated Verizon’s overall result, 97.66 percent.

Liberty recalculated Verizon affiliate results for this product. For OR-2-01-3331, Liberty replicated Verizon’s denominator, as well as the overall result, 0.01 hours.<sup>346</sup> For OR-2-02-3331, Liberty replicated Verizon’s overall result, 100 percent.

**OR-2-03 – Average LSR Reject Time < 6 Lines (Electronic No Flow-Through) and OR-2-04 – % On Time LSR Reject < 6 Lines (Electronic No Flow-Through)**

Verizon calculates the closely related OR-2-03 and OR-2-04 measures separately by various resale and UNE product groups. For resale, these products are: (1) POTS/pre-qualified complex, (2) 2-wire digital services requiring loop qualification, (3) 2-wire xDSL services requiring loop qualification, and (4) Specials. For UNE, these products are: (1) POTS Loop/pre-qualified complex/LNP, (2) POTS Platform, (3) 2-wire digital services requiring loop qualification, (4) 2-wire xDSL services requiring loop qualification, (5) 2-wire xDSL Line Sharing requiring loop qualification, and (6) Specials.

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<sup>343</sup> Verizon selects PON versions with a process flow category value of 1, which indicates that the LSR flowed through to the service order processor without manual intervention.

<sup>344</sup> Response to Data Request #580. Verizon does not use ASR Order Fact data for these sub-metrics because none of the reported products are ordered via ASRs.

<sup>345</sup> Verizon reported a denominator of 853, and Liberty’s result was identical.

<sup>346</sup> Verizon reported a denominator of 3, and Liberty’s result was identical.

Liberty examined the algorithms that Verizon uses to calculate the OR-2-03 and OR-2-04 measures. The formula for the OR-2-03 metric set forth in the Guidelines is:

- Numerator: The sum of reject date and time less order submission date and time for all rejected LSRs that are electronically submitted for less than 6 lines for the specified product
- Denominator: The total number of LSRs electronically submitted for less than 6 lines rejected for the specified product.

The OR-2-04 metric has the same denominator as the OR-2-03 metric, and the formula for the OR-2-04 numerator set forth in the Guidelines is:

- Numerator: The number of electronic rejects sent where reject date and time less submission date and time is within the standard for orders with less than 6 lines for the specified product.

To calculate the denominator for the measures, Verizon counts the number of PONs associated with all LSRs for less than 6 lines that it rejected during the reporting month that it received electronically but that did not flow through to the service order processor without manual intervention.<sup>347</sup> For specials that are ordered via ASRs and do not require facilities verification, Verizon also counts the number of PON versions received electronically that were rejected during the reporting month.<sup>348</sup> Verizon counts all versions of a given PON for which it has sent a rejection. To calculate the numerator for OR-2-03, Verizon sums the rejection intervals for all PON versions identified in the denominator. To calculate the numerator for OR-2-04, Verizon counts the number of on time rejection indicators for all PON versions identified in the denominator.<sup>349</sup> Verizon uses separate algorithms to calculate results for each of the ten product groups.

Liberty concluded that Verizon’s method for calculating these measures conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result for the UNE POTS platform product group for both measures for February 2003 using the LSR Order Fact and ASR Order Fact tables that Verizon provided.<sup>350</sup> For OR-2-03-3140, average LSR reject time, Liberty replicated Verizon’s denominator, as well as the overall result, 17.4 hours.<sup>351</sup> For OR-2-04-3140, percentage on time LSR reject, Liberty replicated Verizon’s overall result, 97.00 percent.

Verizon reported no results for its affiliates for these measures, and Liberty confirmed that there was no relevant data for these affiliates for this product.

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<sup>347</sup> Verizon selects PON versions with a process flow category value of 3, which indicates an electronically submitted (via Web GUI or EDI) LSR for less than 6 lines.

<sup>348</sup> Verizon checks LSR Order Fact and ASR Order Fact table data for UNE Specials products. However, Verizon currently requires facility verification for ASR orders and thus does not select ASR orders for inclusion in the OR-2-03 and OR-2-04 results.

<sup>349</sup> For ASR orders for specials, Verizon’s algorithm counts the number of PON versions with a rejection interval of 48 hours or less.

<sup>350</sup> Responses to Data Requests #429 and #580.

<sup>351</sup> Verizon reported a denominator of 2,599, and Liberty’s result was identical.



**OR-2-05 – Average LSR Reject Time  $\geq$  6 Lines (Electronic No Flow-Through) and OR-2-06 – % On Time LSR Reject Time  $\geq$  6 Lines (Electronic No Flow-Through)**

Verizon calculates the closely related OR-2-05 and OR-2-06 measures separately by various resale and UNE product groups. For resale, these products are: (1) POTS/pre-qualified complex, (2) 2-wire digital services requiring loop qualification, (3) 2-wire xDSL services requiring loop qualification, and (4) Specials. For UNE, these products are: (1) POTS Loop/pre-qualified complex/LNP, (2) POTS Platform, (3) 2-wire digital services requiring loop qualification, (4) 2-wire xDSL services requiring loop qualification, (5) 2-wire xDSL Line Sharing requiring loop qualification, and (6) Specials.

Liberty examined the algorithms that Verizon uses to calculate the OR-2-05 and OR-2-06 measures. The formula for the OR-2-05 metric set forth in the Guidelines is:

- Numerator: The sum of reject date and time less order submission date and time for all rejected LSRs that are electronically submitted for 6 or more lines for the specified product
- Denominator: The total number of LSRs electronically submitted for 6 or more lines rejected for the specified product.

The OR-2-06 metric has the same denominator as the OR-2-05 metric, and the formula for the OR-2-06 numerator set forth in the Guidelines is:

- Numerator: The number of electronic rejects sent where reject date and time less submission date and time is within the standard for orders with 6 or more lines for the specified product.

To calculate the denominator for the measures, Verizon counts the number of PONs associated with all LSRs for 6 or more lines that it rejected during the reporting month that it received electronically but that did not flow through to the service order processor without manual intervention.<sup>352</sup> For specials that CLECs order via ASRs and that require facilities verification, Verizon also counts the number of PON versions received electronically that it rejected during the reporting month.<sup>353</sup> Verizon counts all versions of a given PON for which it has sent a rejection. To calculate the numerator for OR-2-05, Verizon sums the rejection intervals for all PON versions identified in the denominator. To calculate the numerator for OR-2-06, Verizon counts the number of on time rejection indicators for all PON versions identified in the denominator.<sup>354</sup> Verizon uses separate algorithms to calculate results for each of the ten product groups.

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<sup>352</sup> Verizon selects PON versions with a process flow category value of 5, which indicates an electronically submitted (via Web GUI or EDI) LSR for 6 or more lines.

<sup>353</sup> Verizon checks LSR Order Fact and ASR Order Fact table data for UNE Specials products. Verizon currently requires facility verification for ASR orders and any electronic ASR orders for these products would be included in the OR-2-05 and OR-2-06 results.

<sup>354</sup> For ASR orders for specials, Verizon's algorithm counts the number of PON versions with a rejection interval of 72 hours or less.

Liberty concluded that Verizon’s method for calculating these measures conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result for the UNE specials product group for both measures for February 2003 using the LSR Order Fact and ASR Order Fact tables that Verizon provided.<sup>355</sup> For OR-2-05-3200, average LSR reject time, Liberty replicated Verizon’s denominator, as well as the overall result, 24.53 hours.<sup>356</sup> For OR-2-06-3200, percentage on time LSR reject, Liberty replicated Verizon’s overall result, 92.71 percent.

Verizon reported no results for its affiliates for these measures, and Liberty confirmed that there was no relevant data for these affiliates for this product.

**OR-2-07 – Average LSR Reject Time < 6 Lines (Fax) and  
OR-2-08 – % On Time LSR Reject < 6 Lines (Fax)**

Verizon calculates the closely related OR-2-07 and OR-2-08 measures separately by various resale and UNE product groups. For resale, these products are: (1) POTS/pre-qualified complex, (2) 2-wire digital services requiring loop qualification, (3) 2-wire xDSL services requiring loop qualification, and (4) Specials. For UNE, these products are: (1) POTS Loop/pre-qualified complex/LNP, (2) POTS Platform, (3) 2-wire digital services requiring loop qualification, (4) 2-wire xDSL services requiring loop qualification, and (5) Specials.

Liberty examined the algorithms that Verizon uses to calculate the OR-2-07 and OR-2-08 measures. The formula for the OR-2-07 metric set forth in the Guidelines is:

- Numerator: The sum of reject date and time less order submission date and time for all rejected orders that are submitted by fax for less than 6 lines for the specified product
- Denominator: The total number of LSRs submitted by fax for less than 6 lines rejected for the specified product.

The OR-2-08 metric has the same denominator as the OR-2-07 metric, and the formula for the OR-2-08 numerator set forth in the Guidelines is:

- Numerator: The number of faxed rejects sent, where reject date and time less submission date and time is within the standard for orders with less than 6 lines for the specified product.

To calculate the denominators for the measures, Verizon counts the number of PONs associated with all LSRs for less than 6 lines received via fax that it rejected during the reporting month.<sup>357</sup> For specials that are ordered via ASRs and do not require facilities verification, Verizon also counts the number of PON versions received manually that were rejected during the reporting

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<sup>355</sup> Responses to Data Requests #429 and #580.

<sup>356</sup> Verizon reported a denominator of 96, and Liberty’s result was identical.

<sup>357</sup> Verizon selects PON versions with a process flow category value of 2, which indicates a faxed LSR for less than 6 lines.

month.<sup>358</sup> Verizon counts all versions of a given PON for which it has sent a rejection. To calculate the numerator for OR-2-07, Verizon sums the rejection intervals for all PON versions identified in the denominator. To calculate the numerator for OR-2-08, Verizon counts the number of on time rejection indicators for all PON versions identified in the denominator.<sup>359</sup> Verizon uses separate algorithms to calculate results for each of the nine product groups.

Liberty concluded that Verizon's method for calculating these measures conforms to the Guidelines.

Verizon reported no results for these measures for CLECs or for Verizon affiliates for the February 2003 reporting month. Liberty reviewed the LSR and ASR Order Fact data and verified that Verizon had no fax orders.<sup>360</sup>

**OR-2-09 – Average LSR Reject Time  $\geq$  6 Lines (Fax) and  
OR-2-10 – % On Time LSR Reject  $\geq$  6 Lines (Fax)**

Verizon calculates the closely related OR-2-09 and OR-2-10 measures separately by various resale and UNE product groups. For resale, these products are: (1) POTS/pre-qualified complex, (2) 2-wire digital services requiring loop qualification, (3) 2-wire xDSL services requiring loop qualification, and (4) Specials. For UNE, these products are: (1) POTS Loop/pre-qualified complex/LNP, (2) POTS Platform, (3) 2-wire digital services requiring loop qualification, (4) 2-wire xDSL services requiring loop qualification, and (5) Specials.

Liberty examined the algorithms that Verizon uses to calculate the OR-2-09 and OR-2-10 measures. The formula for the OR-2-09 metric set forth in the Guidelines is:

- Numerator: The sum of reject date and time less order submission date and time for all rejected orders that are submitted by fax for 6 or more lines for the specified product
- Denominator: The total number of LSRs submitted by fax for 6 or more lines rejected for the specified product.

The OR-2-10 metric has the same denominator as the OR-2-09 metric, and the formula for the OR-2-10 numerator set forth in the Guidelines is:

- Numerator: The number of faxed rejects sent, where reject date and time less submission date and time is within the standard for orders with 6 or more lines for the specified product.

To calculate the denominators for the measures, Verizon counts the number of PONs associated with all LSRs for 6 or more lines received via fax that it rejected during the reporting month.<sup>361</sup>

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<sup>358</sup> Verizon checks LSR Order Fact and ASR Order Fact table data for UNE Specials products. However, Verizon currently requires facility verification for ASR orders and does not select ASR orders for inclusion in the OR-2-07 and OR-2-08 results.

<sup>359</sup> For ASR orders for specials, Verizon's algorithm counts the number of PON versions with a rejection interval of 72 hours or less.

<sup>360</sup> Responses to Data Requests #429 and #580.

For specials that CLECs order via ASRs that require facilities verification, Verizon also counts the number of PON versions received via fax that it rejected during the reporting month.<sup>362</sup> Verizon counts all versions of a given PON for which it has sent a rejection. To calculate the numerator for OR-2-09, Verizon sums the rejection intervals for all PON versions identified in the denominator. To calculate the numerator for OR-2-10, Verizon counts the number of on time rejection indicators for all PON versions identified in the denominator.<sup>363</sup> Verizon uses separate algorithms to calculate results for each of the nine product groups.

Liberty concluded that Verizon’s method for calculating these measures conforms to the Guidelines.

Verizon reported no results for these measures for CLECs or for Verizon affiliates for the February 2003 reporting month. Liberty reviewed the LSR and ASR Order Fact data and verified that Verizon had no fax orders.<sup>364</sup>

### **Trunk Products – OR-2-11 and OR-2-12**

#### **OR-2-11 – Average Trunk ASR Reject Time and OR-2-12 – % On Time Trunk ASR Reject**

For interconnection trunks, the Guidelines define confirmation response time as the amount of elapsed time (in business days) between the time that Verizon receives a valid ASR and the time it distributes a reject or query. The Guidelines state that Verizon should restart the received date for each supplement. Verizon treats each version of a PON as a new order request, and there may be more than one reject on the same PON number. Unlike the other OR-2 measures, Verizon forms the OR-2-11 and OR-2-12 measures on the basis of service orders, not PONs, and there is often multiple service orders associated with a single PON. The submission and rejection dates for the service orders are the same as those of the PON to which they relate.

The OR-2-11 and OR-2-12 measures relate to orders with 192 or fewer trunks. Unlike the trunk confirmation metrics, Verizon does not exclude projects or requests for new trunks, consistent with the Guidelines.<sup>365</sup> Verizon includes both completed and cancelled orders in the measure.<sup>366</sup> Verizon should seek a clarification to the Guidelines to specify that it includes in these measures both cancelled and completed service orders. Including cancelled orders is appropriate because the OR-2 metrics measure order rejection timeliness, regardless of whether Verizon later cancels a service order.

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<sup>361</sup> Verizon selects PON versions with a process flow category value of 4, which indicates a faxed LSR for 6 or more lines.

<sup>362</sup> Verizon checks LSR Order Fact and ASR Order Fact table data for UNE Specials products. Verizon currently requires facility verification for ASR orders and any fax ASR orders for these products would be included in the OR-2-09 and OR-2-10 results.

<sup>363</sup> For ASR orders for specials, Verizon’s algorithm counts the number of PON versions with a rejection interval of 96 hours or less.

<sup>364</sup> Responses to Data Requests #429 and #580.

<sup>365</sup> Response to Data Request #746.

<sup>366</sup> Responses to Data Requests #600 and #601.

The Guidelines indicate that the measure pertains only to forecasted trunks. Verizon includes only forecasted trunks and requests for augmented trunks in the measures, and includes only those ASRs with 192 or fewer trunks. Verizon indicated that CLEC trunk service included in the measure includes both one-way and two-way trunk products.<sup>367</sup>

Verizon extracts ordering data from the NMP warehouse to create the Trunk Fact table used by Verizon’s metrics algorithm. The key data fields in the Trunk Fact table for the OR-2-11 and OR-2-12 measures are CLEC ID, PON, service order number, project number, service type (CLEC, reciprocal, etc.), ASR quantity, source type (electronic or fax/mail), forecast indicator (Y or N), order status (completed, cancelled, or pending), order status date, rejection interval, exclusion indicator, and inclusion indicator. Verizon uses the service type field to select only CLEC orders, and excludes reciprocal, IXC (inter-exchange carrier), and wireless trunk requests from the measure.<sup>368</sup>

Verizon uses the order status date, which is the date that Verizon updates the Trunk Fact table with a completion date for the order, to select service orders to be included in the reporting month.<sup>369</sup> In most cases, the order status date is the same as the completion date, but Liberty found that for about 10 percent of the orders, the order status date was a day or more later. Verizon should use the actual completion date, rather than the order status date, to select orders to be included in the measure for a given month. Liberty also found that in several cases, the order status date was more than a month later than the actual completion date. Verizon should therefore ensure that it updates the information on all service orders completed in the month before extracting the data from NMP, so that it can accurately calculate the measure using all completed orders. Liberty recognizes, however, that Verizon does not assign a completion date for cancelled orders, and that using the order status date for cancelled orders is a reasonable convention.

NMP calculates the rejection interval as the number of business days between the date that Verizon received the ASR and the date it sent the rejection. Liberty reviewed the calculation of this interval and found that NMP calculated it properly.

NMP sets the exclusion indicator to Y for test CLEC IDs, Verizon affiliate IDs, and VADI.<sup>370</sup> Verizon also uses an inclusion indicator, and selects only those service orders with a value of Y. All initial rejections have an inclusion indicator of Y. Verizon uses a manual process to look for duplicate rejections on the same PON version and change the indicator to a blank for any service orders on that PON version.<sup>371</sup> Thus Verizon is correctly excluding duplicate rejects on the same PON version.

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<sup>367</sup> Responses to Data Requests #410 and #595.

<sup>368</sup> Response to Data Request #417.

<sup>369</sup> Responses to Data Requests #750 and #751.

<sup>370</sup> Response to Data Request #745.

<sup>371</sup> Responses to Data Requests #596 and #749.

Liberty concluded that Verizon’s definition for a key data field used to calculate the metrics is not consistent with the Guidelines. Verizon should use the order completion date, rather than the order status date, to select orders to be included in the measure.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon calculates each sub-metric result by individual CLEC and Verizon affiliate ID and by exclusion indicator (which NMP sets to Y for test CLEC, VADI, and Verizon affiliates on the basis of a look-up table), and aggregates them accordingly in the NMP reporting system.<sup>372</sup> Thus Verizon correctly excludes test CLEC and Verizon affiliate orders from the measures.

As part of its review of rejection intervals, Liberty examined how Verizon excluded weekend and holiday hours from elapsed times. Liberty found that Verizon properly applied these exclusions.

The Guidelines state that Verizon should exclude duplicate rejections from the OR-2 metrics. As noted above, Verizon excludes duplicate rejections using the inclusion indicator.

Liberty examined the algorithms that Verizon uses to calculate the OR-2-11 and OR-2-12 measures. The formula for the OR-2-11 metric set forth in the Guidelines is:

- Numerator: The sum of rejection date less submission date for trunk orders with 192 or fewer forecasted trunks
- Denominator: The total number of rejected trunk orders for 192 or fewer forecasted trunks.

The OR-2-12 metric has the same denominator as the OR-2-11 metric, and the formula for the OR-2-12 numerator set forth in the Guidelines is:

- Numerator: The number of rejected trunk orders that meet the reject trunk standard (10 business days).

To calculate the denominator for the measures, Verizon counts the number of service orders related to rejected CLEC ASRs for 192 or fewer trunks. Verizon selects those service orders with an order status date within the reporting month.<sup>373</sup> To calculate the numerator for OR-2-11, Verizon sums the rejection intervals for the service orders identified in the denominator. To calculate the numerator for OR-2-12, Verizon counts the number of service orders with a rejection interval within the standard interval, *i.e.*, 10 business days for electronically submitted ASRs, and 11 business days for manual ASRs.<sup>374</sup>

Liberty recalculated the CLEC aggregate result for both measures for February 2003 using the Trunk Fact table that Verizon provided.<sup>375</sup> For OR-2-11-5020, average reject time, Liberty replicated Verizon’s denominator, as well as the overall result, 1.00 business days.<sup>376</sup> For OR-2-12-5020, percentage on time rejects, Liberty replicated Verizon’s overall result, 100 percent.

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<sup>372</sup> Response to Data Request #612.

<sup>373</sup> Response to Data Request #601.

<sup>374</sup> Response to Data Request #606.

<sup>375</sup> Response to Data Requests #428.

<sup>376</sup> Verizon reported a denominator of 1, and Liberty’s result was identical.

Verizon reported no trunk results for its affiliates for these measures, and Liberty confirmed that there was no relevant data for these affiliates.

### **3. Findings and Recommendations**

#### **Verizon’s treatment of LSR order and ASR orders for the OR-2 measure is inconsistent and not in conformance with the Guidelines.**

Verizon is inconsistent in how it measures the elapsed time between receipt and rejection for LSR orders and ASR orders. Verizon’s practice of using a surrogate time of 00:00 for the rejection time on most ASR orders leads to calculated intervals shorter than they should be. Liberty recommends that Verizon uniformly record the rejection time on all order types to provide a more accurate result for the OR-2 metrics.

In situations where Verizon sends both a reject and a confirmation on the same PON version, Verizon is inconsistent in how it treats rejections after confirmations between LSR orders and ASR orders. For ASR orders, Verizon does not count rejections on a given PON version that it sends after a confirmation. For LSR orders, Verizon counts the rejection regardless of whether the order also had an earlier confirmation. To be consistent with the Guidelines, Liberty recommends that Verizon treat both ASR and LSR orders in the same fashion for such cases.

#### **Verizon’s exclusion of special project orders in OR-2 is reasonable, but not consistent with the Guidelines.**

Verizon is currently excluding orders associated with special projects from the calculation of the OR-2-01 through OR-2-10 metrics. This exclusion is appropriate and Verizon should seek a clarification to the Guidelines to reflect this exclusion.

#### **Verizon’s method for selecting orders included in the reporting month for OR-2-11 and OR-2-12 is not consistent with the Guidelines.**

Verizon selects trunk service orders to be included in the measures by the order status date, rather than the order completion date. Verizon should use the completion date. Verizon should also update its administrative procedures to ensure that it records the completion dates for all orders completed during the month in the Trunk Fact data before it extracts the data from NMP to calculate the results. Liberty recognizes, however, that Verizon does not assign a completion date for cancelled orders, and that using the order status date for cancelled orders is a reasonable convention.

Verizon should also seek a clarification to the Guidelines to indicate that it includes both completed and cancelled service orders in the metrics.

## **D. OR-3, Percent Rejects**

### **1. Background**

The OR-3 measure reports the percentage of orders received by Verizon that it rejects or queries. The Guidelines define the measure as the percentage of orders that Verizon receives (including supplements and re-submissions) that it rejects or queries (orders that Verizon queries are considered rejected).<sup>377</sup> The Guidelines indicate that Verizon should report performance against all order transactions processed in EDI and Web GUI.

There is only one sub-metric within OR-3, and Verizon reports separate results for resale and UNE products. Verizon reports OR-3 results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. The only exclusions that apply to OR-3 are Verizon test orders and Verizon affiliate data from CLEC results. There is no standard for OR-3 and the sub-metric is not included in the Verizon IP.

### **2. Analysis and Evaluation**

Liberty did not conduct a detailed analysis of this measure, since it is not included in Verizon’s IP, CLECs did not express any concerns, and there are no standards associated with this measure. Liberty did, however, examine the method and algorithms that Verizon uses to calculate the measure.

The key data fields in the LSR Order Fact table and ASR Order Fact table are the same as those that Liberty discussed previously regarding the OR-2 measures. Verizon excludes test orders and Verizon affiliate data in the same fashion as discussed for other OR measures.

The formula for the OR-3 metric set forth in the Guidelines is as follows:

- Numerator: The count of all rejected LSR/ASR transactions
- Denominator: The total number of LSR/ASR records with unique PONs for the specified product.

To calculate the denominator for the measure, Verizon counts the number of PONs associated with all ASR and LSR orders that it received during the reporting month. Specifically, Verizon counts orders with distinct combinations of state, CLEC ID, and PON number that have a receipt date during the month. To calculate the numerator, Verizon counts the total number of rejects for all PON versions that have a rejection date during the reporting month. Verizon uses separate algorithms to calculate results for resale and for UNE products.

Verizon has indicated that it interprets the Guideline term “unique PON” for the purposes of the OR-3 measure as the distinct combination of state, CLEC ID, and PON number. Although there may be several versions of a PON (created when CLECs resubmit or supplement orders),

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<sup>377</sup> The Guidelines state that orders are rejected due to omission of or errors in required information.



Verizon does not count each version in the denominator. It does, however, examine all versions of a PON when counting rejects for the numerator.

Liberty interprets the definition of unique PON differently. While the Guidelines for OR-3 do not provide a definition for the term, they define it under OR-2 as the combination of PON number, version number, and CLEC ID (for New Jersey orders). Verizon should use this definition for the OR-3 metric also. Liberty’s interpretation is more consistent with the language in the Guidelines regarding the OR-3 measure, which states that Verizon should measure orders, including supplements and resubmissions (*i.e.*, versions). Verizon’s current approach creates a mismatch between numerator and denominator (*i.e.*, PON versions versus PONs), making the reported results unnecessarily difficult to interpret.<sup>378</sup>

Verizon has another error in its algorithm for this measure. The Guidelines indicate that Verizon should measure performance for electronic orders (EDI and Web GUI). However, Verizon does not exclude any manual orders from its calculation. Verizon has indicated that manual orders are rare. Nevertheless, Verizon should correct its algorithm to reflect this requirement.

The Guidelines do not specify how Verizon should define the reporting month for this measure. Verizon uses the order receipt date field to select the relevant orders for the denominator, and the reject date field to select orders for the numerator. This approach is reasonable, but Verizon should seek a clarification to the Guidelines to reflect it. There will always be a small mismatch problem with this approach, however, since the rejections reported in the numerator will not necessarily relate to the same population of orders reported in the denominator.

### **3. Findings and Recommendations**

**Verizon does not calculate results for OR-3 correctly and is not in conformance with the Guidelines.**

Verizon is incorrectly calculating the OR-3 measure and should correct its method. Specifically, Verizon should count all versions of orders in the denominator, and report only orders that the CLECs submit electronically, excluding orders submitted manually. Verizon should also seek a clarification to the Guidelines to specify how it defines the reporting month for the measure.

## **E. OR-4, Timeliness of Completion Notifications**

### **1. Background**

The metrics within OR-4 report on Verizon’s performance in issuing timely billing and provisioning completion notifications. This measure group reports average response time,

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<sup>378</sup> Because Verizon bases the numerator on all PON versions and the denominator on unique PONs, it is possible to have more rejected order versions in the numerator than total orders in the denominator.

percentage on time, and percentage of completion for SOP to bill/provisioning completion within certain time intervals.

Verizon reports its completion notification timeliness results in ten sub-metrics within OR-4. Verizon reports results separately by resale and UNE products. The exclusions that apply to OR-4 are:

- Verizon test orders
- Orders for which the completion time cannot be determined
- Verizon affiliate data from CLEC results
- For metrics OR-4-09, OR-4-10, and OR-4-11, orders not submitted through the Web GUI interface and orders not submitted electronically.

Verizon reports OR-4 results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. Verizon also reports retail parity results for OR-4-06, OR-4-07, and OR-4-08. The standards for the measures within the OR-4 group vary by sub-metric:

- For OR-4-01, OR-4-04, and OR-4-08 (Average Response Times, and Percentage SOP to Bill Completion >1 Business Day), there is no standard
- For OR-4-02 (Completion Notice – Percentage on Time), the standard is 97 percent by the next business day at noon
- For OR-4-05 (Work Completion Notice – Percentage on Time), the standard is 95 percent by the next business day at noon
- For OR-4-09 (Percentage SOP to Bill Completion within 3 Business Days), the standard is 95 percent within 3 business days of SOP completion
- For OR-4-06 and OR-4-07 (Average Duration – Work Completion - SOP to Bill Completion, and Percentage SOP to Bill Completion  $\geq$  5 Business Days), the standard is parity with Verizon retail.

The product-specific results for four sub-metrics within OR-4, or a total of eight reported results, are included in Verizon’s IP.<sup>379</sup> During the 15-month period ending January 2003, three of these (OR-4-06-3000, OR4-06-2000, and OR-4-09-3000) accounted for 45 percent of Verizon’s incentive payment dollars. Measure OR-4-06-3000 alone accounted for 31 percent of Verizon’s credits during this period.<sup>380</sup>

In its January 2003 petition to the Board, Verizon recommended a substantial revision to the OR-4 metrics.<sup>381</sup> Verizon suggested that all OR-4 metrics except OR-4-11 (which it recommends be modified) be replaced with two new OR measures as recently adopted in New York.

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<sup>379</sup> These are the resale and UNE results for OR-4-05, OR-4-06, OR-4-09, and OR-4-11.

<sup>380</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>381</sup> Petition of Verizon New Jersey Inc. to Modify Certain Carrier to Carrier Performance Measurements and Standards, January 13, 2003, Docket No. TX95120631 and TX98010010.

## 2. Analysis and Evaluation

The OR-4 metrics measure the timeliness of Verizon’s work completion and bill completion notifications. Verizon includes only LSR orders in the OR-4 metrics, since the systems that Verizon uses to process ASRs do not produce the same type of electronic notifications as the LSR ordering systems.<sup>382</sup> Although a CLEC may submit several versions of a PON, Verizon records completion information on only one, the latest. Each PON may result in several internal Verizon service orders, and Verizon records SOP completion and sends notifications for a given PON only after the last service order on the PON is complete.

The Guidelines indicate that under Verizon’s current process for resale and UNE orders except hot cuts, it delivers completion notifications over the same interface (EDI or Web GUI) on which the CLEC submitted the order. The Guidelines do not specifically address orders that CLECs did not submit electronically. In the case of manual orders, Verizon would deliver the notification by fax or mail; however, such manual orders are rare.

The Guidelines indicate that for UNE hot cut orders, Verizon should measure completion notification response time from completion of the physical cutover work to when it places a telephone call to the CLEC notifying it of completion of the physical cutover work. Verizon’s process for measuring hot cut orders is not consistent with this language.<sup>383</sup> Instead, Verizon measures hot cut orders the same way that it measures all other orders. Verizon’s method is acceptable but not in compliance with the Guidelines. Liberty recommends that Verizon seek a revision to the Guidelines regarding this language.

Verizon extracts ordering data from the NMP warehouse to create the LSR Order Fact and LSR Service Order Fact tables used by Verizon’s metrics algorithms to calculate the OR-4 metrics.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines that are common to all OR-4 sub-metrics, *i.e.*, test orders and Verizon affiliate data. Verizon excludes these orders by a logic step in its algorithm that screens out records that have a test account flag, which NMP calculates on the basis of a look-up table of test CLEC IDs, VADI, and Verizon affiliate IDs.<sup>384</sup> Liberty concluded that Verizon is correctly applying these exclusions.

For each of the OR-4 measures, Verizon uses a separate algorithm to calculate the results for each product group. Verizon calculates results for Verizon affiliate using algorithms that are essentially the same as those that it uses for CLEC results, except that it uses only those orders flagged as relating to Verizon affiliates.<sup>385</sup>

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<sup>382</sup> Response to Data Request #411.

<sup>383</sup> Response to Data Request #741.

<sup>384</sup> Response to Data Request #383.

<sup>385</sup> Verizon affiliate and VADI LSRs have the same value in the test account flag. In response to Data Request #698, Verizon clarified that it calculates Verizon affiliate results by the CLEC ID, and separates VADI from Verizon affiliates by grouping results accordingly.

**OR-4-01 – Completion Notice – Average Response Time and  
OR-4-02 – Completion Notice – Percentage On Time**

Measures OR-4-01 and OR-4-02 focus on the elapsed time between the order completion in the billing system and the time that Verizon distributes the order completion notification, referred to by Verizon as the billing completion notification (BCN).

Until June 2002, Verizon used the time that the CRIS billing system itself was updated as the CRIS completion date/time. The CRIS update was part of a batch process, and Verizon was unable to capture a time, only a date. As of June 2002, Verizon uses the CRIS completion date/time that the service order processor, MISOS, creates. Once the CRIS system has updated billing and notified MISOS, MISOS updates the service order with a CRIS completion date/time.<sup>386</sup> One CLEC request, or PON, can result in many service orders. The CRIS completion date that Verizon puts in the LSR Order Fact table data is the one associated with the last order completed for a given PON.<sup>387</sup>

For orders that Verizon received via Web GUI or via fax/mail, the BCN date/time that Verizon uses is the one generated in Request Manager. Request Manager generates the BCN after MISOS sends a message to it letting it know that the order has been completed. For orders that Verizon receives via EDI, the BCN typically reflects the time that NetLink translates, encrypts, and attempts to send the BCN to the CLEC. NMP populates the BCN with the date and time from Request Manager first, but overlays these times with those from NetLink if it receives them. Thus the BCN for an EDI order can be either the date/time in Request Manager or NetLink. Verizon recently introduced enhancements so that it matches more of the EDI notifications to PONs, and therefore more of the BCNs for EDI orders reflect the NetLink date/time.<sup>388</sup>

Verizon also recently made changes in how it records notification dates like BCN for EDI orders in cases where it cannot send the notification due to CLEC system problems.<sup>389</sup> Verizon now has a process (although undocumented) to keep track of attempts to send confirmations to the CLEC. Confirmations remain in a queue in Verizon’s system if the CLEC’s system is unable to receive them. At a certain point, if Verizon determines that it cannot send the notification, Verizon opens a trouble ticket regarding the problem with sending the notification to the CLEC. A Verizon representative would review the log and see when Verizon tried to send the notification, and populate the BCN with the attempt time (rather than the later time, when Verizon finally sends the confirmation). Verizon indicated that situations like these are now infrequent, since most CLECs now use dedicated lines, rather than the Internet, for ordering.

The key data fields in the LSR Order Fact table for the OR-4-01 and OR-4-02 measures are CLEC ID, PON, CRIS completion date/time, BCN (CRIS notification) date/time, order type (resale, UNE), test account flag, CRIS notification interval, and on time indicator. Verizon

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<sup>386</sup> Response to Data Request #509.

<sup>387</sup> The Request Manager system coordinates and matches service orders to PONs.

<sup>388</sup> CCNJ2003-08104-Ord.

<sup>389</sup> CCNJ2002-06385 completed in October 2002.

completes only one version of a PON, so the PON version is not relevant for these measures. NMP sets the test account flag to Y for test CLEC, VADI, and Verizon affiliate IDs.<sup>390</sup>

NMP calculates the CRIS notification interval as the difference between the CRIS completion date/time and the BCN date/time. In most cases, the CRIS completion date/time field has no time, only a date. Verizon uses 00:00 military time as a proxy in order to calculate the CRIS notification interval in those cases. This practice would cause the interval to be overstated.<sup>391</sup> The Guidelines do not specify the use of a proxy time; however this approach is preferable to excluding orders. Liberty recommends that Verizon seek a clarification to the Guidelines in this regard. Liberty reviewed the calculation of the CRIS notification interval and concluded that NMP calculates it properly. NMP assigns a value of Y to the on time indicator if the BCN is by noon the next business day after CRIS completion. For purposes of this indicator, Saturday is considered a business day in New Jersey.<sup>392</sup> Liberty reviewed the assignment of the indicators and concluded that NMP determined them properly.

Liberty concluded that Verizon’s definitions for the key data fields used to calculate the metrics are consistent with the Guidelines.

The Guidelines state that when order completion time cannot be determined, Verizon should exclude the order from the measure. Liberty interprets the language of the Guidelines to mean completion date and time, rather than just the time.<sup>393</sup> The Guidelines are also not specific as to which completion times it refers, and Liberty interprets the language to mean any completion time, *i.e.*, SOP completion and billing completion, used in the OR-4 measures. Liberty recommends that Verizon seek a clarification to the Guidelines to reflect this interpretation. In its OR-4-01 and OR-4-02 algorithms, Verizon checks whether the CRIS completion date/time is blank, and if it is, it excludes the LSR from the measure.<sup>394</sup> Thus Verizon is appropriately applying the exclusion for these measures.

Verizon calculates results for these measures separately by resale and UNE product groups. Liberty examined the algorithms that Verizon uses to calculate the OR-4-01 and OR-4-02 measures. The formula for the OR-4-01 metric set forth in the Guidelines is as follows:

- Numerator: The sum of notification date and time less CRIS bill completion date and time
- Denominator: The total number of completion notices for the specified product.

Although the Guidelines define it differently, the denominator for OR-4-02 is essentially the same as that for OR-4-01, since only those PONs with completion notices within the reporting month will have an on time indicator of Y or N. The formula for the OR-4-02 metric set forth in the Guidelines is as follows:

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<sup>390</sup> Response to Data Request #383.

<sup>391</sup> In response to Data Request #629, Verizon indicated that NMP receives the CRIS completion date/time value from Request Manager, which populated the 00:00 value if it does not receive a time component from MISOS.

<sup>392</sup> Response to Data Request #350.

<sup>393</sup> Liberty believes that in cases where there is a date but no time, Verizon will overstate the interval because it uses 00:00 military time as a proxy. Liberty believes that this convention is preferable to excluding the order and having fewer reported observations.

<sup>394</sup> Response to Data Request #740.

- Numerator: The number of completion notices where notice occurs on or before noon the business day after bill completion
- Denominator: The number of PONs for the specified product with ON\_TIME\_NOTFCTN of ORDERING\_MASTER\_RECORD = ‘Y’ or ‘N.’

To calculate the denominator for the measures, Verizon counts the number of PONs with a BCN (CRIS notification) date/time within the reporting month. If the CRIS completion date is blank, however, Verizon does not count the PON.<sup>395</sup> To calculate the numerator for OR-4-01, Verizon sums the CRIS notification intervals for all PONs identified in the denominator. To calculate the numerator for OR-4-02, Verizon counts the number of on time indicators for all PONs identified in the denominator. Verizon uses separate algorithms to calculate results for each of the two product groups.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result for the UNE product group for both measures for February 2003 using the LSR Order Fact table that Verizon provided.<sup>396</sup> For OR-4-01-3000, average response time, Liberty replicated Verizon’s denominator, as well as the overall result, 0.34 days.<sup>397</sup> For OR-4-02-3000, percentage on time completion notification, Liberty replicated Verizon’s overall result, 99.38 percent.

Liberty recalculated Verizon affiliate results for this product group. For OR-4-01-3000, Liberty replicated Verizon’s denominator, as well as the overall result, 0.53 days.<sup>398</sup> For OR-4-02-3000, Liberty replicated Verizon’s overall result, 83.33 percent.

#### **OR-4-04 – Work Completion Notice – Average Response Time and OR-4-05 – Work Completion Notice – Percentage On Time**

Measures OR-4-04 and OR-4-05 focus on the elapsed time between the actual order completion in the service order processor (SOP completion) and the time that Verizon distributes the order completion notification, referred to by Verizon as the provisioning completion notification (PCN).

Once the work on a given service order is complete in WFA, the service order processor for New Jersey orders, MISOS, updates the service order with a work completion date, referred to by Verizon as the SOP completion date.<sup>399</sup> As the Guidelines note, one CLEC request, or PON, can result in many service orders. The SOP completion date in the LSR Order Fact table is the one associated with the last service order completed for a given PON.<sup>400</sup>

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<sup>395</sup> During replication, Liberty found that Verizon excluded only one PON for this reason for the February data month.

<sup>396</sup> Response to Data Request #580.

<sup>397</sup> Verizon reported a denominator of 83,890, and Liberty’s result was identical.

<sup>398</sup> Verizon reported a denominator of 18, and Liberty’s result was identical.

<sup>399</sup> Response to Data Request #509.

<sup>400</sup> The Request Manager system coordinates and matches service orders to PONs.

For orders that Verizon receives via Web GUI or fax/mail, the PCN date/time that Verizon uses is the one generated in Request Manager, which generates the PCN after MISOS sends a message to Request Manager letting it know that the work has been completed. For orders that Verizon receives via EDI, the PCN typically reflects the time that NetLink translates, encrypts, and attempts to send the PCN to the CLEC. NMP populates the PCN with the date and time from Request Manager first, but overlays these times with those from NetLink if it receives them. Thus the PCN for an EDI order can be either the date/time in Request Manager or NetLink.

The key data fields in the LSR Order Fact table for the OR-4-04 and OR-4-05 measures are CLEC ID, PON, work completion date (date work completed in WFA), SOP completion date/time, PCN (provisioning completion notification) date/time, order type (resale, UNE), test account flag, SOP notification interval, and on time indicator. Verizon completes only one version of a PON, so the PON version is not relevant for these measures. NMP sets the test account flag to Y for test CLEC, VADI, and Verizon affiliate IDs.<sup>401</sup>

NMP calculates the SOP notification interval as the difference between the SOP completion date/time and the PCN date/time. In some cases, the SOP completion date/time field has no time, only a date. Verizon uses 00:00 military time as a proxy in order to calculate the SOP notification interval in those cases.<sup>402</sup> However, if there is no SOP completion date/time, Verizon uses the work completion date from WFA.<sup>403</sup> Liberty reviewed the calculation of this interval and concluded that NMP calculated it properly.

NMP assigns a value of Y to the on time indicator if the PCN is by noon the next business day after the SOP completion. For purposes of this indicator, Saturday is considered a business day in New Jersey.<sup>404</sup>

The Guidelines state that when order completion time cannot be determined, Verizon should exclude the order from the measure. Verizon checks for a SOP completion date/time and work completion date/time in its algorithms, and excludes any LSR that has both missing. The check on the SOP completion date/time is appropriate. However, Liberty does not believe that the check on the work completion date/time is relevant or necessary. Verizon should exclude orders from the measure if they have no SOP completion date/time. Similarly, Verizon’s method for calculating the SOP notification interval and the on-time indicator should not use the work completion date as a proxy; instead, Verizon should exclude the order from the measure if it has no SOP completion date/time.

Liberty concluded that Verizon’s definitions for the key data fields used to calculate the metrics are not consistent with the Guidelines.

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<sup>401</sup> Response to Data Request #383.

<sup>402</sup> In response to Data Request #629, Verizon indicated that NMP receives the SOP completion date/time value from Request Manager, which populated the 00:00 value if it does not receive a time component from MISOS.

<sup>403</sup> Response to Data Request #819.

<sup>404</sup> Response to Data Request #350.

Verizon calculates results for these measures separately by resale and UNE product groups. Liberty examined the algorithms that Verizon uses to calculate the OR-4-04 and OR-4-05 measures. The formula for the OR-4-04 metric set forth in the Guidelines is as follows:

- Numerator: The sum of notification date and time less SOP completion date and time for the specified product
- Denominator: The total number of SOP completion notices for the specified product.

Although the Guidelines define it differently, the denominator for OR-4-05 is essentially the same as that for OR-4-04, since only those PONs with completion notices within the reporting month will have an on time indicator of Y or N. The formula for the OR-4-05 metric set forth in the Guidelines is as follows:

- Numerator: The number of SOP completion notices where notice occurs on or before noon the business day after SOP completion for the specified product
- Denominator: The number of PONs for the specified product with ON\_TIME\_NOTFCTN of ORDERING\_MASTER\_RECORD = ‘Y’ or ‘N’.

To calculate the denominator for the measures, Verizon counts the number of PONs with a PCN (SOP notification) date/time within the reporting month. If the SOP completion date and the work completion date is blank, however, Verizon does not count the PON. To calculate the numerator for OR-4-04, Verizon sums the SOP notification intervals for all PONs identified in the denominator. To calculate the numerator for OR-4-05, Verizon counts the number of on time indicators for all PONs identified in the denominator. Verizon uses separate algorithms to calculate results for each of the two product groups.

As noted above, Liberty concluded that Verizon’s method for calculating this measure does not conform to the Guidelines because Verizon does not exclude orders with no SOP completion date/time, and uses work completion date as a proxy for calculating the SOP notification interval.

Liberty recalculated the CLEC aggregate result for the resale product group for both measures for February 2003 using the LSR Order Fact table that Verizon provided.<sup>405</sup> For OR-4-04-2000, average response time, Liberty replicated Verizon’s denominator, as well as the overall result, 0.02 days.<sup>406</sup> For OR-4-05-2000, percentage on-time work completion notifications, Liberty replicated Verizon’s overall result, 99.85 percent.

Verizon reported no results for Verizon affiliates. Liberty verified that there were no relevant data for the affiliates for this product group.

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<sup>405</sup> Response to Data Request #580.

<sup>406</sup> Verizon reported a denominator of 19,453, and Liberty’s result was identical.



**OR-4-06 – Average Duration – Work Completion (SOP) to Bill Completion, OR-4-07 – % SOP to Bill Completion  $\geq$  5 Business Day and OR-4-08 – % SOP to Bill Completion  $\geq$  1 Business Days**

The OR-4-06, OR-4-07, and OR-4-08 measures are related. The OR-4-06 sub-metric measures the elapsed time between SOP completion and bill completion. The OR-4-07 sub-metric measures the percentage of orders having an elapsed time between SOP completion and bill completion of greater than five business days, and OR-4-08 measures the percentage of orders having the elapsed time greater than one business day. The standard for OR-4-06 and OR-4-07 is parity with Verizon retail; there is no standard for OR-4-08.

The formula for the OR-4-06 metric set forth in the Guidelines is as follows:

- Numerator: The sum of date and time for bill completion less date and time for SOP completion
- Denominator: The number of orders with SOP and bill completions.

The denominators for OR-4-07 and OR-4-08 are the same as that for the OR-4-06 metric.

The numerators for the OR-4-07 and OR-4-08 metrics set forth in the Guidelines are as follows:

- Numerator (OR-4-07): The count of orders where the date and time for bill completion less date and time for SOP completion is greater than or equal to 5 business days
- Numerator (OR-4-08): The count of orders where the date and time for bill completion less date and time for SOP completion is greater than one business day.

Verizon measures service orders, rather than PONs, in the OR-4-06, OR-4-07, and OR-4-08 sub-metrics. Verizon does not have a LSR equivalent on the retail side, only service orders, and thus uses service orders for both the wholesale and retail results. Moreover, the note in the Guidelines regarding the use of the last service order of a PON applies to notifications, which do not come into play for these measures. Verizon’s approach is reasonable in this regard.

In its January 2003 petition to the Board, Verizon discussed the reasons that it considered OR-4-06 to be a “flawed” metric.<sup>407</sup> Verizon records bill completion during a nightly batch process, but SOP completions occur during the day at varying intervals. If Verizon completes a wholesale service order earlier in the day than a retail order, the SOP to bill completion interval for the wholesale transaction would be longer. According to Verizon, CLECs value completion of orders earlier in the day, and the OR-4-06 measure is a disincentive for Verizon to do so. Verizon also indicated that parity with Verizon retail was not a proper standard, since there are processes for certain wholesale orders that take longer to complete than for retail orders (such as migrations).

Because it is reporting on service orders rather than LSRs, Verizon uses LSR Service Order Fact table data (which Liberty discusses in more detail in the chapter on the provisioning metrics) to calculate these three sub-metrics.

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<sup>407</sup> Petition of Verizon New Jersey Inc. to Modify Certain Carrier to Carrier Performance Measurements and Standards, January 13, 2003, Docket No. TX95120631 and TX98010010.

Liberty reviewed the algorithms that Verizon uses to calculate the measures. These algorithms are considerably different from those Verizon uses for all other OR-4 metrics. Verizon’s Metric Business Rules (MBR) algorithms for these measures perform only a few of the processing steps necessary to calculate results. Verizon selects as the relevant population for the measures the New Jersey service orders that have a CRIS completion date within the reporting month.<sup>408</sup> For wholesale and retail orders, the CRIS completion date relates to the individual service order.<sup>409</sup> Verizon screens these orders based on a global exclusion indicator, which NMP calculates. Verizon sets the global exclusion indicator to Y if the service order relates to:<sup>410</sup>

- PARTS orders
- Administrative orders (typically billing record changes and Verizon initiated orders)
- Disconnect orders issued as a companion to migration orders
- Duplicate orders on line sharing orders that are related only to billing
- Records with blank service order numbers
- Corporate services (Verizon requests for company telecommunications services)
- Directory listing, advertising, and special billing orders.

Unlike other measures, the MBR algorithms then pass a series of data fields on the selected service orders to separate programming procedures, which consist of logic steps designed to perform further exclusions. Verizon has separate programming procedures for the resale, UNE, and retail parity results. These procedures were in place before Verizon converted to NMP, and Verizon indicated that it had no plans to re-engineer them.

Liberty examined Verizon’s programming procedure for the resale product in considerable detail. Verizon’s procedure screens the service orders passed from the MBR algorithm to select only completed orders, and those that relate only to LSRs.<sup>411</sup> Verizon excludes service orders associated with test CLEC IDs through the use of a test account flag, which is calculated in NMP on the basis of a look-up table of test CLEC IDs. Verizon excludes any service orders that are not associated with residential or business accounts (such as coin account orders). Verizon also excludes all VADI orders.<sup>412</sup>

In its programming procedure, Verizon does additional screening to remove other administrative orders that it ostensibly did not capture through the global exclusion indicator.<sup>413</sup> Verizon also does screening to exclude service orders that are related to residence listing billing, directory advertising billing, business miscellaneous class of service, summary reports, and independent central office class of service.<sup>414</sup> Verizon indicated that it excludes these six types of orders

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<sup>408</sup> Response to Data Request #832.

<sup>409</sup> Response to Data Request #833 (clarification).

<sup>410</sup> Response to Data Request #588.

<sup>411</sup> Verizon excludes any orders that it bills from CABS, which it uses for ASR orders.

<sup>412</sup> Response to Data Request #864.

<sup>413</sup> Verizon excludes orders with a PON that begin with VZLBF and any orders where the first two characters of the associated LSR are ZZ.

<sup>414</sup> Verizon excludes orders that have a primary class of service of DB2, DB5, MMS, MUZ, SU2, or ZZO.

because they are administrative in nature, and do not require provisioning.<sup>415</sup> Verizon also excludes service orders associated with certain special projects.<sup>416</sup>

Verizon applies different additional programming steps to orders based on order type, although these steps essentially accomplish the same purpose. For N, T, C, and R orders (new, transfer, change, and records only), Verizon selects orders associated with a resale provider, and removes any related to Verizon-initiated orders or billing record only orders.<sup>417</sup> Verizon excludes internally generated orders. For D and F orders (disconnect and “from” disconnect orders, used when Verizon moves service from one address to another), Verizon selects those associated with a resale provider (using a different data field than for the prior orders), and removes any that are related to Verizon initiated orders.<sup>418</sup> Verizon performs more screening on D orders within the called procedure to exclude additional internally generated orders that it had not already removed.<sup>419</sup>

To derive the numerator for OR-4-06, Verizon first calculates for each service order the SOP to CRIS interval, which is the number of hours between the CRIS completion date and the work completion date recorded in WFA. Verizon then sums the results for all service orders identified for the denominator.

To calculate the numerator for OR-4-07, Verizon counts the number of service orders identified in the denominator that have a SOP to CRIS interval of greater than or equal to 5 business days. To calculate the numerator for OR-4-08, Verizon counts those orders with a SOP to CRIS interval greater than 1 business day.

Liberty recalculated the CLEC aggregate result for OR-4-06-2000 (resale) for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>420</sup> Liberty replicated Verizon’s denominator, as well as the overall result, 13.64 hours.<sup>421</sup> Liberty also recalculated the CLEC aggregate results for OR-4-07-2000 and OR-4-08-2000, and replicated the overall results of 0.18 percent and 11.43 percent, respectively.

Liberty asked Verizon to explain how its separate programming procedure for the retail parity metric differed from the one it uses to calculate wholesale results. Verizon indicated that it

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<sup>415</sup> Response to Data Request #844.

<sup>416</sup> Verizon excludes orders with a CLEC ID of SCE and a PON that begins with CXCM and orders with CLEC IDs of MTV, EXU, or 8524 that also have a PON that begins with CERSM. These orders appear to be different from those excluded from other OR metrics.

<sup>417</sup> Verizon selects orders that have a Provider value of “R” for resale, and excludes any that have an original appointment code of Y or K. Verizon uses the code of K to indicate instances where it uses a service order for billing rearrangements. Verizon uses a code of Y to indicate Verizon initiated orders that are customer affecting but not requested by the customer. In response to DR #848, Verizon clarified that only retail orders would have Verizon-initiated orders designated in this fashion.

<sup>418</sup> Verizon selects orders that have an Outward Seller value of “R” for resale, and excludes any that have an original appointment code of Y (but does not exclude those with a value of K). In response to DR #848, Verizon clarified that only retail orders would have Verizon-initiated orders designated in this fashion.

<sup>419</sup> Response to Data Request #860. Verizon selects only certain service orders, based on certain combinations of LSR numbers, service code modifiers, and primary class of service codes.

<sup>420</sup> Response to Data Request #582.

<sup>421</sup> Verizon reported a denominator of 21,425, and Liberty’s result was 21,423.

selected retail service orders, rather than resale orders, but that it basically performed the same types of exclusions that it did for resale, although using different data fields in some cases.<sup>422</sup> Verizon also excludes VADI orders from its retail results.<sup>423</sup>

Liberty did not attempt to replicate the retail parity results or the UNE wholesale results for sub-metrics OR-4-06, OR-4-07, and OR-4-08.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon calculates each sub-metric result by individual CLEC and Verizon affiliate ID, and aggregates them accordingly in the NMP reporting system.<sup>424</sup> Verizon excludes test orders using logic steps in its algorithms that screen out records that have a test account flag, which NMP calculates on the basis of a look-up table of test CLEC IDs.<sup>425</sup> The Guidelines state that when order completion time cannot be determined, Verizon should exclude the order from the measure. Liberty found that Verizon includes in the measures only those service orders that have CRIS completion dates, and concluded that Verizon correctly applies this exclusion.

Verizon’s method for calculating these measures does not conform to the Guidelines. While Verizon is adequately implementing the exclusions in the Guidelines, it makes a large number of additional exclusions that the Guidelines do not list. Verizon excludes VADI orders from retail and wholesale results. Verizon excludes administrative, Verizon-initiated, and billing only records orders, as well as certain types of service (such as coin). Verizon excludes certain special projects, listings, business miscellaneous exclusions, and many other types of orders. Liberty did not determine whether any of these additional exclusions are appropriate. However, Liberty recommends that Verizon adequately document the exclusions that it is applying for these measures, and seek clarification to the Guidelines to incorporate them.

Of the three measures, only OR-4-06 is included in Verizon’s IP. Verizon’s incentive payments for the OR-4-06 measures have changed considerably since mid-2002. For example, for measure OR-4-06-3000 (UNE), Verizon was paying nearly \$0.5 million per month in the middle of 2002, but by December its payments had dropped to zero. The chart below shows Verizon’s performance on the OR-4-06 metric over the last 15 months:<sup>426</sup>

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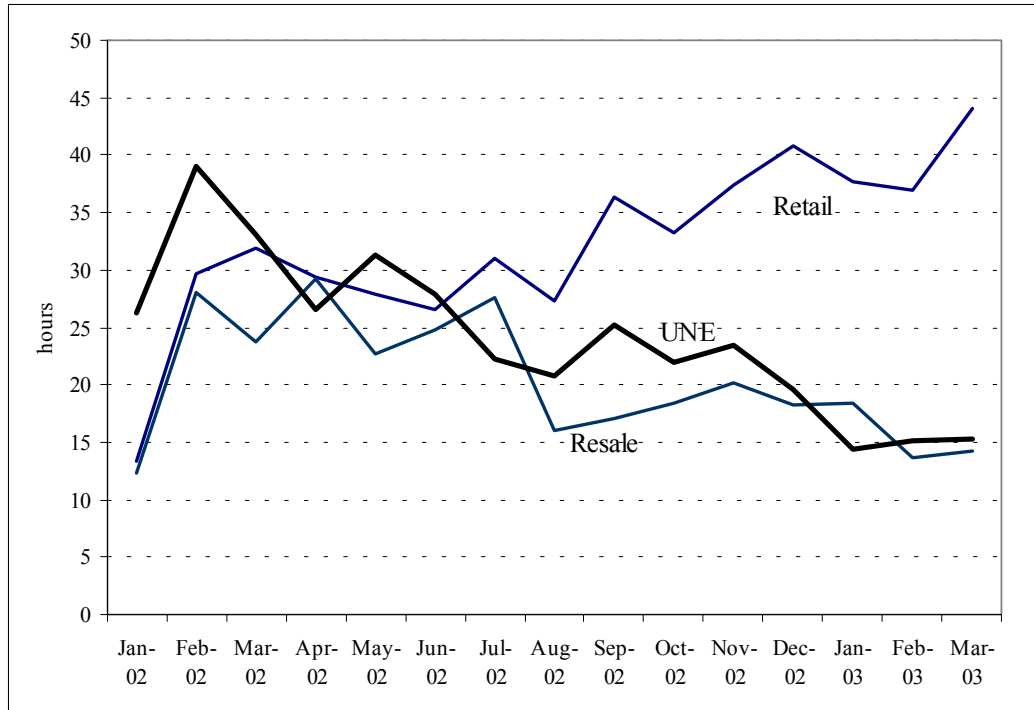
<sup>422</sup> Response to Data Request #812.

<sup>423</sup> Response to Data Request #691 (clarification).

<sup>424</sup> Response to Data Request #612.

<sup>425</sup> Response to Data Request #383.

<sup>426</sup> Verizon Performance reports and response to Data Request #895.



Liberty asked Verizon to explain why its performance changed so markedly over the time period.<sup>427</sup> Verizon subsequently provided Liberty with eight change control notices that it completed in mid-2002 and that had an effect on the reported result.<sup>428</sup> For example:

- Verizon discovered that it had not been excluding certain types of official Verizon orders, Verizon-initiated orders, and billing record orders.<sup>429</sup>
- Verizon found that, in instances where the daily 5 p.m. CRIS batch process completed after midnight, it was incorrectly calculating SOP to CRIS completion intervals of zero days for orders that completed before 5 p.m., and incorrectly calculating shorter than actual intervals for orders that completed after 5 p.m.<sup>430</sup>
- Verizon found that it had incorrectly excluded retail special services orders with fictitious billing numbers as internal Verizon orders, when they in fact were valid orders.<sup>431</sup>
- Verizon found that the process it used to identify and exclude duplicate orders was incorrectly excluding some orders that were not duplicates.<sup>432</sup>

Verizon's change control notices did not explain, and Liberty did not determine, what effect these changes had on reported results.

<sup>427</sup> Interview #59, May 9, 2003.

<sup>428</sup> Response to Data Request #824.

<sup>429</sup> CCNJ2002-05757-Ord.

<sup>430</sup> CCNJ2002-06557-Ord.

<sup>431</sup> CCNJ2002-06075-Ord.

<sup>432</sup> CCNJ2002-06096-Ord.

Liberty asked Verizon to explain whether it had implemented any changes in the business processes during the same time period. Verizon stated that it had implemented a process improvement initiative on the wholesale side in August 2002. Normally, Verizon ran its automated completion process on non-dispatched orders that it had completed during the day at 8 p.m. Verizon runs its batch CRIS update process at 5 p.m., so prior to August Verizon did not complete the billing on these orders until the CRIS update the next day. Starting in August, Verizon initiated an automated completion run at 4 p.m., so that such orders now can complete billing in the same day.<sup>433</sup>

This initiative is the likely cause for the large change in Verizon’s wholesale performance beginning in August. Verizon has essentially eliminated nearly a day from the SOP to billing completion interval for a large portion of its wholesale orders, while making no similar change for retail orders. Most resale orders and some UNE orders are non-dispatch orders, and therefore the larger effect occurred in the OR-4-06 results for resale.

Verizon implemented another wholesale process improvement initiative at the end of 2002. Verizon directed its representatives to focus on clearing any post-completion discrepancies associated with wholesale service orders so that these orders can be included in the CRIS batch run the same day on which work was completed. Verizon reportedly implemented no new initiatives on the retail side. Verizon did not explain its decline in retail performance that started in mid-2002.

#### **OR-4-09 – % SOP to Bill Completion within 3 Business Days**

OR-4-09 applies only to LSR orders that the CLEC submits via EDI. This measure focuses on the elapsed time between the actual order completion in the service order processor (SOP completion) and the time that Verizon distributes the billing order completion notification (BCN).

Once the work on a given service order is complete in WFA, Verizon’s service order processor for New Jersey orders, MISOS, updates the service order with a work completion date, referred to by Verizon as a SOP completion date.<sup>434</sup> One CLEC request, or PON, can result in many service orders. The SOP completion date that Verizon puts in the LSR Order Fact table data is the one associated with the last service order completed for a given PON. For EDI orders, Verizon also records what it terms the RM PCN date/time. This field represents the date/time of the PCN generated in Request Manager, rather than the PCN date/time from NetLink for EDI orders.

As discussed under OR-4-01 and OR-4-02, for orders that Verizon receives via EDI, the BCN typically reflects the time that NetLink translates, encrypts, and attempts to send the BCN to the CLEC. NMP populates the BCN field with the date and time from Request Manager first, but overlays these times with those from NetLink if it receives them. Thus the BCN for an EDI order can be either the date/time in Request Manager or NetLink.

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<sup>433</sup> Response to Data Request #824 (2<sup>nd</sup> supplement).

<sup>434</sup> Response to Data Request #509.

The Guidelines state that Verizon should consider a completion notice as sent by Verizon through EDI when the NetLink system time-stamps the completion notice (following translation and encryption of the completion notice). In its metrics algorithm, Verizon checks whether the BCN date/time is from NetLink; if it is not, it scores the order as a miss, regardless of whether it was on time. Verizon’s treatment is therefore consistent with the language of the Guidelines.

The key data fields in the LSR Order Fact table data for the OR-4-09 measure are CLEC ID, PON, PON version, order origin (EDI, web, manual), work completion date, SOP completion date/time, RM PCN date/time, BCN (billing completion notification) date/time, BCN notification source (Request Manager or NetLink), order type (resale, UNE), test account flag, exclusion indicator, and on time indicator. NMP sets the test account flag to Y for test CLEC, VADI, and Verizon affiliate IDs.<sup>435</sup>

Verizon uses the exclusion indicator to flag special projects, based on a look-up table of such projects maintained in NMP.<sup>436</sup> NMP assigns a value of Y to the on time indicator if the elapsed time between the SOP completion date/time and BCN is within three business days. In cases where there is only a SOP completion date, but no time, Verizon uses 00:00 military time in the calculation.<sup>437</sup> However, if there is no SOP completion date/time, Verizon uses the work completion date from WFA.<sup>438</sup> If both are missing, Verizon scores the orders as a miss (but includes it in the denominator).<sup>439</sup>

Verizon uses the RM PCN date/time, rather than the SOP completion date/time, to select orders to be included in the denominator of the measure. Verizon indicated that the RM PCN date/time field was populated when the last service order associated with a PON was sent from MISOS to Request Manager. Verizon indicated that it does not use the SOP completion date because MISOS does not have the ability to correlate service orders associated with a PON. However, NMP populates the SOP completion date/time field in the LSR Order Fact table with the SOP completion date/time of the last service order completed on the PON.<sup>440</sup> Verizon’s method is incorrect. The definition of the denominator in the Guidelines specifies SOP completion, and the correct SOP completion date/time is available. Using a timestamp other than SOP completion creates a mismatch between the numerator and denominator, since the numerator measures the interval between SOP completion and the BCN. Liberty concluded that Verizon’s definition for this key data field is not consistent with the Guidelines.

Verizon should use the SOP completion date as the field to select orders for the denominator. If a PON does not have a SOP completion date, then Verizon should exclude the order from the measure, consistent with the language of the Guidelines. Similarly, Verizon would not have to resort to using a proxy date to calculate the on time indicator for the numerator. Liberty

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<sup>435</sup> Response to Data Request #383.

<sup>436</sup> Response to Data Request #806.

<sup>437</sup> Response to Data Request #629.

<sup>438</sup> In response to Data Request #812, Verizon indicated that in such cases it checks if the work completion date is greater than the PCN date, because the work completion date is manually populated and subject to typographical error. If the work completion date is invalid, Verizon uses the PCN date as the ultimate proxy for SOP completion.

<sup>439</sup> Response to Data Request #349.

<sup>440</sup> Response to Data Request #811.

recognizes that Verizon would have to modify the method that it uses to extract data from the NMP warehouse to create the LSR Order Fact table for the reporting month. Currently, Verizon does not select records by whether the SOP completion date falls within the reporting month (it uses, among others, BCN, PCN, and RM PCN date). Therefore, the current LSR Order Fact table may be missing certain PONs (such as those that had a SOP completion date of February 28<sup>th</sup> but a PCN of March 1<sup>st</sup>) necessary to calculate the measure properly.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon includes only LSRs that it receives via EDI, and excludes Web GUI and manual orders through a logic step in its algorithms. The Guidelines state that when order completion time cannot be determined, Verizon should exclude the order from the measure. As noted above, Verizon does not use the SOP completion date/time, but rather uses the RM PCN date/time, and does not check for missing SOP completion times. Therefore, Liberty concluded that Verizon does not correctly apply this exclusion.

Although not specified in the Guidelines, Verizon excludes special project PONs from the OR-4-09 metrics.<sup>441</sup> This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

Liberty examined the algorithms that Verizon uses to calculate the OR-4-09 measures. The formula for the OR-4-09 metric set forth in the Guidelines is as follows:

- Numerator: The total number of orders in the denominator for which billing completion notices are sent within 3 business days of SOP completion
- Denominator: The number of SOP completed orders during the reporting period.

To calculate the denominator for the measure, Verizon counts the number of PON versions with a RM PCN date/time within the reporting month.<sup>442</sup> To calculate the numerator, Verizon counts the number of on time indicators for all PON versions identified in the denominator. Verizon uses separate algorithms to calculate results for each of the two product groups.

Using Verizon’s method, Liberty recalculated the CLEC aggregate result for OR-4-09-3000 (UNE) for February 2003 using the LSR Order Fact table that Verizon provided.<sup>443</sup> Liberty replicated Verizon’s denominator, as well as the overall result, 97.72 percent.<sup>444</sup>

Liberty recalculated Verizon affiliate results, and replicated Verizon’s denominator, as well as the overall result, 85.71 percent.<sup>445</sup>

Liberty also recalculated the CLEC aggregate result using the SOP completion date/time instead of the RM PCN date/time in the denominator. Using this alternative method, Liberty calculated a

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<sup>441</sup> In response to Data Request #706, Verizon clarified that it excludes the same special project PONs from OR-4-09 that it does from the non-flow through OR-1 and OR-2 metrics and from OR-7 metrics.

<sup>442</sup> If this date were blank, the PON would not be selected in the denominator.

<sup>443</sup> Response to Data Request #580.

<sup>444</sup> Verizon reported a denominator of 79,472, and Liberty’s result was identical.

<sup>445</sup> Verizon reported a denominator of 7, and Liberty’s result was identical.



result of 97.68 percent.<sup>446</sup> Verizon should calculate its results using the SOP completion date instead of the RM PCN date in the denominator.

#### **OR-4-10 – % SOP to Provisioning Completion within 2 Business Days**

OR-4-10 applies only to LSR orders that the CLEC submits via EDI. This measure focuses on the elapsed time between the actual order completion in the service order processor (SOP completion) and the time that Verizon distributes the provisioning completion notification (PCN).

Once the work on a given service order is complete in WFA, Verizon’s service order processor for New Jersey orders, MISOS, updates the service order with a work completion date, referred to by Verizon as a SOP completion date.<sup>447</sup> One CLEC request, or PON, can result in many service orders. The SOP completion date that Verizon puts in the LSR Order Fact table data is the one associated with the last service order completed for a given PON.

As discussed under OR-4-04 and OR-4-05, for orders that Verizon receives via EDI, the PCN typically reflects the time that NetLink translates, encrypts and attempts to send the PCN to the CLEC. NMP populates the PCN field with the date and time from Request Manager first, but overlays these times with those from NetLink if it receives them. Thus the PCN for an EDI order can be either the date/time in Request Manager or NetLink.

The Guidelines state that Verizon should consider a completion notice as sent by Verizon through EDI when the NetLink system time-stamps the completion notice (following translation and encryption of the completion notice). In its metrics algorithm, Verizon checks whether the PCN date/time is from NetLink; if it is not, it scores the order as a miss, regardless of whether it was on time. Verizon’s treatment is therefore consistent with the language of the Guidelines.

The key data fields in the LSR Order Fact table for the OR-4-10 measure are CLEC ID, PON, PON version, order origin (EDI, web, manual), work completion date, SOP completion date/time, RM PCN date/time, PCN (provisioning completion notification) date/time, PCN notification source (Request Manager or NetLink), order type (resale, UNE), test account flag, exclusion indicator, and on time indicator. NMP sets the test account flag to Y for test CLEC, VADI, and Verizon affiliate IDs.<sup>448</sup>

Verizon uses the exclusion indicator to flag special projects, based on a look-up table of such projects maintained in NMP.<sup>449</sup> NMP assigns a value of Y to the on time indicator if the elapsed time between the SOP completion date/time and PCN is within two business days. In cases where there is only a SOP completion date, but no time, Verizon uses 00:00 military time in the calculation.<sup>450</sup> However, if there is no SOP completion date/time, Verizon uses the work

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<sup>446</sup> Liberty’s alternative method yielded a denominator of 79,191 compared to 79,472 under Verizon’s method.

<sup>447</sup> Response to Data Request #509.

<sup>448</sup> Response to Data Request #383.

<sup>449</sup> Response to Data Request #806.

<sup>450</sup> Response to Data Request #629.

completion date from WFA.<sup>451</sup> If both are missing, Verizon scores the orders as a miss (but includes it in the denominator).<sup>452</sup>

Verizon uses the RM PCN date/time, rather than the SOP completion date/time, to select orders to be included in the denominator of the measure. As discussed in more detail for OR-4-09, Verizon should use the SOP completion date as the field to select orders for the denominator. If a PON does not have a SOP completion date, then Verizon should exclude the order from the measure, consistent with the language of the Guidelines. Similarly, Verizon would not have to resort to using a proxy date to calculate the on time indicator for the numerator.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon includes only LSRs that it receives via EDI, and excludes Web GUI and manual orders through a logic step in its algorithms. The Guidelines state that when order completion time cannot be determined, Verizon should exclude the order from the measure. Verizon does not use the SOP completion date/time, but rather uses the RM PCN date/time, and does not check for missing SOP completion times. Liberty concluded that Verizon does not correctly apply this exclusion.

Although not specified in the Guidelines, Verizon excludes special project PONs from the OR-4-10 metrics.<sup>453</sup> This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect it.

Liberty examined the algorithms that Verizon uses to calculate the OR-4-10 measures. The formula for the OR-4-10 metric set forth in the Guidelines is as follows:

- Numerator: The total number of orders in the denominator for which provisioning completion notices are sent within 2 business days of SOP completion
- Denominator: The number of SOP completed orders during the reporting period.

To calculate the denominator for the measure, Verizon counts the number of PON versions with a RM PCN date/time within the reporting month. To calculate the numerator, Verizon counts the number of on time indicators for all PON versions identified in the denominator. Verizon uses separate algorithms to calculate results for each of the two product groups.

Liberty recalculated the CLEC aggregate result for OR-4-10-3000 (UNE) for February 2003 using the LSR Order Fact table that Verizon provided.<sup>454</sup> Liberty replicated Verizon’s denominator, as well as the overall result, 99.80 percent.<sup>455</sup>

Liberty recalculated Verizon affiliate results, and replicated Verizon’s denominator, as well as the overall result, 100 percent.<sup>456</sup>

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<sup>451</sup> Response to Data Request #813.

<sup>452</sup> Response to Data Request #349.

<sup>453</sup> In response to Data Request #706, Verizon clarified that it excludes the same special project PONs from OR-4-09 that it does from the non-flow through OR-1 and OR-2 metrics and from OR-7 metrics.

<sup>454</sup> Response to Data Request #580.

<sup>455</sup> Verizon reported a denominator of 79,472, and Liberty’s result was identical.

<sup>456</sup> Verizon reported a denominator of 7, and Liberty’s result was identical.

Liberty also recalculated the CLEC aggregate result using the SOP completion date/time instead of the RM PCN date/time in the denominator. Using this alternative method, Liberty calculated a result of 99.77 percent.<sup>457</sup>

**OR-4-11 – % Orders Completed in SOP without a BCN and PCN within 3 Business Days**

OR-4-11 applies only to LSR orders that the CLEC submits via EDI. This measure focuses on the percentage of orders that have completed in the service order processor but the CLEC received neither a PCN nor a BCN within three business days.

Once the work on a given service order is complete in WFA, Verizon's service order processor for New Jersey orders, MISOS, updates the service order with a work completion date, referred to by Verizon as a SOP completion date.<sup>458</sup> The SOP completion date that Verizon puts in the LSR Order Fact table data is the one associated with the last service order completed for a given PON.

For orders that Verizon receives via EDI, the PCN and BCN typically reflect the time that NetLink translates, encrypts and attempts to send the PCN or BCN to the CLEC. NMP populates the PCN and BCN fields with the date and time from Request Manager first, but overlays these times with those from NetLink if it receives them. Thus the PCN and BCN for an EDI order can be either the date/time in Request Manager or NetLink.

The Guidelines state that Verizon should consider a completion notice as sent by Verizon through EDI when the completion notice is time-stamped in Verizon's NetLink system (following translation and encryption of the completion notice). In its metrics algorithm, Verizon checks whether or not the PCN date/time and BCN date/time are both from NetLink; if it is not, it scores the order as a miss, regardless of whether it sent them within three business days. Verizon's treatment is therefore consistent with the language of the Guidelines.

The key data fields in the LSR Order Fact table data for the OR-4-11 measure are CLEC ID, PON, PON version, order origin (EDI, web, manual), work completion date, SOP completion date/time, RM PCN date/time, PCN (billing completion notification) date/time, PCN notification source (Request Manager or NetLink), BCN date/time, BCN notification source (Request Manager or NetLink), order type (resale, UNE), test account flag, exclusion indicator, and miss indicator. NMP sets the test account flag to Y for test CLEC, VADI, and Verizon affiliate IDs.<sup>459</sup>

Verizon uses the exclusion indicator to flag special projects, based on a look-up table of such projects maintained in NMP.<sup>460</sup> Liberty examined the logic that Verizon uses to assign a value to the miss indicator. In cases where there is only a SOP completion date, but no time, Verizon uses

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<sup>457</sup> Liberty's alternative method yielded a denominator of 79,191 compared to 79,472 under Verizon's method.

<sup>458</sup> Response to Data Request #509.

<sup>459</sup> Response to Data Request #383.

<sup>460</sup> Response to Data Request #806.

00:00 military time in the calculation.<sup>461</sup> However, if there is no SOP completion date/time, Verizon uses the work completion date from WFA. If both are missing, Verizon scores the orders as a miss (but includes it in the denominator).<sup>462</sup> If the intervals between SOP completion date/time (or the proxy) and PCN date/time, and between SOP completion date/time (or the proxy) and BCN date time are both greater than three business days, Verizon considers the order a miss. Verizon also consider the order a miss if the interval between the SOP completion date/time and the PCN date/time is greater than 3 business days and there is no BCN date/time.<sup>463</sup>

Verizon uses the RM PCN date/time, rather than the SOP completion date/time, to select orders to be included in the denominator of the measure. As discussed in more detail for OR-4-09, Verizon should use the SOP completion date as the field to select orders for the denominator. If a PON does not have a SOP completion date, then Verizon should exclude the order from the measure, consistent with the language of the Guidelines. Similarly, Verizon would not have to resort to using a proxy date to calculate the on time indicator for the numerator.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon includes only LSRs that it receives via EDI, and excludes Web GUI and manual orders through a logic step in its algorithms. The Guidelines state that when order completion time cannot be determined, Verizon should exclude the order from the measure. As noted above, Verizon does not use the SOP completion date/time, but rather uses the RM PCN date/time, and does not check for missing SOP completion times. Liberty has concluded that Verizon does not correctly apply this exclusion.

Although not specified in the Guidelines, Verizon excludes special project PONs from the OR-4-11 metrics.<sup>464</sup> This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect it.

Liberty examined the algorithms that Verizon uses to calculate the OR-4-11 measures. The formula for the OR-4-11 metric set forth in the Guidelines is as follows:

- Numerator: The total number of orders in the denominator for which both no billing completion notice was sent within 3 business days of SOP completion and no provisioning completion notice was sent within 3 business days of SOP completion
- Denominator: The number of SOP completed orders during the reporting period.

To calculate the denominator for the measure, Verizon counts the number of PON versions with a RM PCN date/time within the reporting month.<sup>465</sup> To calculate the numerator, Verizon counts the number of miss indicators for all PON versions identified in the denominator. Verizon uses separate algorithms to calculate results for each of the two product groups.

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<sup>461</sup> Response to Data Request #629.

<sup>462</sup> Response to Data Request #349.

<sup>463</sup> Response to Data Request #814.

<sup>464</sup> In response to Data Request #706, Verizon clarified that it excludes the same special project PONs from OR-4-09 that it does from the non-flow through OR-1 and OR-2 metrics and from OR-7 metrics.

<sup>465</sup> If this date were blank, the PON would not be selected in the denominator.

Liberty recalculated the CLEC aggregate result for OR-4-11-2000 (resale) for February 2003 using the LSR Order Fact table that Verizon provided.<sup>466</sup> Liberty replicated Verizon’s denominator, as well as the overall result, 0.20 percent.<sup>467</sup>

Verizon reported no results for Verizon affiliates. Liberty verified that there were no relevant data for the affiliates for this product group.

### **3. Findings and Recommendations**

#### **Verizon’s current process for measuring hot cut orders for the OR-4 metrics is reasonable but inconsistent with the language in the Guidelines.**

The Guidelines indicate that for UNE hot cut orders, Verizon should measure completion notification response time from completion of the physical cutover work to when it places a telephone call to the CLEC notifying it of completion of the physical cutover work. Verizon’s current process for measuring these orders is inconsistent with this language. Verizon measures hot cut orders the same way that it measure all other orders for OR-4 measures, and is therefore not in compliance with the Guidelines. Verizon’s method is reasonable, and Verizon should seek a revision to the Guidelines regarding this language.

#### **Verizon’s method for calculating the OR-4-01 through OR-4-05 and OR-4-09 through OR-4-11 sub-metrics contains exclusions that the Guidelines do not specify.**

For the OR-4-01 through OR-4-05 and OR-4-09 through OR-4-11 sub-metrics, in instances where a SOP or CRIS completion date, but not a time, is available, Verizon uses 00:00 as a proxy. The Guidelines do not specify the use of a proxy time. Verizon’s use of a surrogate time will tend to overstate the measured interval. Verizon’s method of using a surrogate time is preferable to excluding these orders, however. Liberty recommends that Verizon seek a clarification to the Guidelines in this regard. At the root cause of this matter is a shortcoming with Verizon’s MISOS system, which does not populate a time in many cases. Verizon should explore how it could improve this system, or whether its planned new service processor for New Jersey will have this capability.

The Guidelines language regarding excluding orders when the completion time cannot be determined is unclear. Liberty interprets this language to mean orders that have a missing date and time, rather than just a missing time. Liberty interprets this language to apply to any completion date used in the OR-4 metrics, specifically SOP completion and billing completion. Verizon should seek to clarify this language in the Guidelines.

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<sup>466</sup> Response to Data Request #580.

<sup>467</sup> Verizon reported a denominator of 9,625, and Liberty’s result was identical.

Verizon is currently excluding orders associated with special projects from the calculation of the OR-4-09 through OR-4-11 metrics. This exclusion is appropriate, and Verizon should seek a clarification to the Guidelines to reflect this exclusion.

In cases where an order does not have a SOP completion date/time, Verizon uses the work completion date as a proxy to calculate the SOP completion interval for the OR-4-04 measure and the on time indicator for the OR-4-05 measure. Verizon uses the same approach for calculating the SOP to billing and SOP to work completion intervals for the OR-4-09 through OR-4-11 measures. This approach is inconsistent with the Guidelines. Verizon should exclude orders without a SOP completion date/time from the measures. As such, the use of a proxy to calculate the numerator is unnecessary. Verizon should modify its algorithms to correct this mistake.

**Verizon does not use the correct data field to define the denominator for the OR-4-09, OR-4-10, and OR-4-11 measures.**

The Guidelines for OR-4-09, OR-4-10, and OR-4-11 define the denominator for these measures as the number of SOP completed orders during the reporting period. Verizon uses the RM PCN date, rather than the SOP completion date/time, to define the denominator. The RM PCN date represents the date that Verizon sent the work completion notice to the CLEC as recorded in Request Manager, not the date that Verizon completed the order in the SOP. Using a data field other than the SOP completion timestamp for these measures does not conform to the Guidelines. Liberty recommends that Verizon change its method for the calculation of these measures. Liberty also recommends that Verizon modify the method it uses to extract the LSR Order Fact table data from the NMP warehouse, since its current method will not ensure that it reports all SOP completed orders.

**Verizon’s methods for calculating OR-4-06 through OR-4-08 do not conform to the Guidelines.**

Verizon excludes from the measures many types of service orders, such as special projects, administrative orders, directory listing, advertising, and special billing orders, corporate services orders, and duplicate orders on line sharing orders that relate only to billing. The Guidelines do not list these additional exclusions. Liberty recommends that, if the Board decides to retain these sub-metrics, Verizon should seek clarification of the Guidelines and more clearly document its calculation processes.

## **F. OR-5, Percent Flow-Through**

### **1. Background**

The metrics within OR-5 report the percentage of orders that Verizon receives through the electronic ordering interfaces (EDI and Web GUI) and processes directly to the legacy SOP

without manual intervention. The Guidelines define flow-through orders as those service orders that require no action by a Verizon service representative to type an order into the SOP.

Within the OR-5 measure group, there are three sub-metrics designed to measure Verizon’s performance on the percentage of total orders that flow-through, the percentage of simple (basic POTS) orders that flow-through, and the percentage flow-through achieved on all flow-through eligible orders. Verizon reports separate results for resale and UNE products for all three sub-metrics. The Guidelines specify the following exclusions for OR-5 measures:

- Verizon test orders
- Orders that are submitted manually
- Verizon affiliate data from CLEC results
- For metric OR-5-03, orders that are not eligible to flow-through, and orders with CLEC input errors.

Verizon reports these metrics on a statewide basis for CLECs in aggregate. The standard for measure OR-5-03 (Percent Flow-Through Achieved) is 95 percent. There are no standards for the other OR-5 measures. The two product results for OR-5-03 are included in Verizon’s IP. Metric OR-5-03-3000 alone accounted for about 8 percent of all Verizon’s incentive payment dollars in New Jersey for the 15-month period ending with January 2003.<sup>468</sup>

## **2. Analysis and Evaluation**

### **OR-5-01 – % Flow Through – Total and OR-5-02 - % Flow Through - Simple**

The OR-5-01 and OR-5-02 sub-metrics measure the percentage of valid orders for all UNE and resale products and for basic POTS services (excluding Centrex), respectively, that Verizon receives through the electronic ordering interfaces and processes directly to the SOP without manual intervention. Basic POTS service includes POTS resale, POTS UNE-P, and unbundled analog loops.<sup>469</sup>

Liberty did not conduct a detailed analysis for these sub-metrics, since they are not included in Verizon’s IP, CLECs did not express any concerns, and there are no standards for these sub-metrics. Liberty did, however, examine the algorithms that Verizon uses to calculate them.

The key data fields in the LSR Order Fact table used to calculate these measures are CLEC ID, PON, PON version, confirmation date/time, process flow category, order type (resale, UNE loop, or UNE platform), and test account flag, which Liberty discussed previously regarding other OR measures. There are two other key fields, the general service order type (simple, complex, or Centrex) and the initial service order class (POTS, specials, or complex) that Verizon uses for the OR-5-02 measure to select only simple orders. The key data fields in the ASR Order Fact table data are CLEC ID, PON, PON version, confirmation date/time, service order type (manual

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<sup>468</sup> Incentive Payment reports provided to Liberty by the Board’s Staff.

<sup>469</sup> Interview #22, March 20, 2003.

or electronic), and exclusion indicator, which Liberty discussed previously regarding other OR measures.

Verizon excludes manual orders by selecting only those orders that it receives via Web GUI or EDI. Verizon excludes test orders and Verizon affiliate data in the same fashion as discussed for other OR measures.

Verizon calculates results for these measures separately by resale and UNE product groups. Liberty examined the algorithms that Verizon uses to calculate the OR-5-01 measure. The formula for the OR-5-01 metric set forth in the Guidelines is as follows:

- Numerator: The count of all orders that flow through for the specified product
- Denominator: The total number of LSR/ASR records (orders) for the specified product.

To calculate the denominator for OR-5-01, Verizon counts all ASRs and LSRs that it receives electronically that also have a confirmation date within the reporting month. Specifically, Verizon counts all version of a given PON for which it sent a confirmation during the reporting month. To calculate the numerator, Verizon counts the number of the PON versions that actually flowed through.<sup>470</sup> Verizon calculates results for this measure separately for resale and UNE products.

The Guidelines do not specify how Verizon should define the reporting month for these two sub-metrics. Verizon uses the confirmation date to select the relevant orders for the numerator and denominator each month. This is an appropriate approach, because using it will ensure that Verizon reports all relevant PONs. For example, an order received on February 28<sup>th</sup> but not confirmed until March 2<sup>nd</sup> will be included in March results. Verizon interprets the Guidelines term “valid” to mean confirmed, and excludes any PON versions that it rejected.

The formula for the OR-5-02 metric set forth in the Guidelines is as follows:

- Numerator: The count of all orders that flow through for the specified product (excluding Centrex, Complex, and Specials)
- Denominator: The total number of LSR/ASR records (orders) for the specified product (excluding Centrex, Complex, and Specials).

Verizon uses an algorithm to calculate OR-5-02 that is similar to the one it uses to calculate OR-5-01, except that it includes additional logic steps for the numerator and denominator to select only those orders for basic POTS services.<sup>471</sup> There are no ASR orders in the OR-5-02 result, since Verizon receives all relevant orders for these products through LSRs.

Liberty concluded that Verizon’s method for calculating these measures conforms to the Guidelines.

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<sup>470</sup> Verizon selects PON versions with a process flow category value of 1, which means that the order achieved flow through. There are no ASRs reflected in the numerator, since none are eligible to or do flow through.

<sup>471</sup> Verizon includes LSRs with an initial service order class of POTS service, and excludes those for specials and complex services. Verizon also excludes Centrex orders using the initial service order class.



Liberty recalculated the CLEC aggregate result for one of the OR-5-01 measures for February 2003 using the LSR Order Fact and ASR Order Fact tables that Verizon provided.<sup>472</sup> For OR-5-01-2000, percent flow-through total (resale), Liberty replicated Verizon’s denominator, as well as the overall result, 89.54 percent.<sup>473</sup>

### **OR-5-03 – % Flow Through Achieved**

The OR-5-03 sub-metric measures the percentage of orders Verizon receives electronically that are eligible to flow-through and that actually do flow through to the service order processor without manual intervention. Verizon maintains a list of the types of orders that are eligible to flow through on its wholesale website.<sup>474</sup> The formula for the OR-5-03 metric set forth in the Guidelines is as follows:

- Numerator: The number of flow-through eligible orders that flow through for the specified product
- Denominator: The number of flow-through eligible orders for the specified product.

Verizon’s method for calculating the OR-5-03 measure involves a series of processing steps, and Verizon has outsourced the majority of those steps to Austin Computers (ACE). Verizon sends two files to ACE on a daily basis, and ACE processes them daily to determine the appropriate orders that Verizon should exclude from the measure. The first, an order file, consists of all PON versions that Verizon confirmed the prior day. Verizon includes only confirmations in the measure, consistent with the term “valid orders” in the Guidelines.<sup>475</sup> Verizon includes only orders submitted via LSRs. Verizon appropriately excludes orders submitted by ASRs because they are not designed to flow through. The second is an error file, which Verizon extracts from Request Manager by the date that the flow through error occurred.<sup>476</sup> This file contains all flow through eligible orders that did not achieve flow through, along with error codes and error messages assigned by the Verizon backend order processing system that describe the reason the order failed to flow through.<sup>477</sup>

The key data fields in the order file for each PON version are CLEC ID, PON, PON version, test account flag, the flow through eligibility indicator, order origin (Web GUI, EDI, or fax/mail), order quantity, flow through achieved indicator, and process flow category.<sup>478</sup> Verizon’s Request Manager system assigns the flow through eligibility indicator based on a look-up table of orders that are flow-through eligible. NMP assigns a value of Y or N to the flow through achieved indicator based on an indicator from Request Broker, Verizon’s automated order generating

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<sup>472</sup> Responses to Data Requests #429 and #580.

<sup>473</sup> Verizon reported a denominator of 21,111, and Liberty’s result was identical.

<sup>474</sup> Response to Data Request #133. Verizon’s website address is <http://www22.Verizon.com/wholesale>, and the list of flow through eligible orders is located under the Business Rules portion of the Local Service Provider section.

<sup>475</sup> Verizon assigns rejected orders a process flow category, but does not include them in the measure.

<sup>476</sup> A flow through error occurs when an order that had a flow through eligibility indicator of Y fails to achieve flow through.

<sup>477</sup> A flow through error can occur in any of the Verizon backend systems. The error code indicates in which system the error occurred.

<sup>478</sup> Responses to Data Requests #380 and #381 and Interview #52.

system. NMP assigns a process flow category value of 1 through 5 to the PON version based on order origin, order quantity, and flow through achieved indicator.<sup>479</sup> The process flow categories are as follows:

- 1 - achieved flow through
- 2 – submitted via fax/mail, non-flow through, with less than 6 lines
- 3 – submitted electronically, non-flow-through, with less than 6 lines
- 4 - submitted via fax/mail, non-flow through, with 6 or more lines requiring facilities verification
- 5 – submitted electronically, non-flow-through, with 6 or more lines requiring facilities verification

The PON versions with a process flow category value of 1, 3, and 5 are potentially relevant for the OR-5-03 measure. Verizon excludes orders that CLECs do not submit electronically, *i.e.*, process flow categories 2 and 4, from the order file that it sends to ACE, consistent with the exclusions specified in the Guidelines. ACE must further refine the population of orders in process flow categories 3 and 5 to determine whether these orders qualify for exclusion because they were (a) incorrectly marked as flow through eligible by Request Manager, or (b) failed to flow through because of CLEC input error.

ACE compares the flow through eligibility indicator and the flow through achieved indicator for each PON version to select from among the remaining orders those that are included, or that may potentially be included, in the measure, as summarized below:

<b>Flow Through Eligible</b>	<b>Flow Through Achieved</b>	<b>OR-5-03 Metric</b>
Y	Y	Included in numerator and denominator
N	N	Excluded from measure
N	Y	Included in numerator and denominator
Y	N	Require further review

Orders in the third category, those that Request Manager marked as eligible to flow through but yet did flow through, are included in the measure. Verizon indicated that this situation happens if NMP’s eligibility look-up table categorized the order as not being flow-through eligible when in fact it was.

For orders that fall into the last category, those that are eligible to flow through but did not actually achieve flow through, ACE must do further analysis to determine if they are included or excluded from the measure. Under the Guidelines, Verizon should exclude from the measure orders with CLEC input errors in violation of published business rules. ACE analyzes the orders in this last category using the error file to isolate the orders that did not flow through because of CLEC reasons. ACE also identifies those orders that Request Manager incorrectly labeled as flow through eligible.

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<sup>479</sup> Responses to Data Requests #380 and #381.

By comparing the error code and error message for each order to a look-up table of exclusion categories (the “CAT table”), ACE analyzes each order in the error file and places it in one of four categories:<sup>480</sup>

- Category 1 – The order was incorrectly labeled as flow through eligible yet the order type is not designed to flow through
- Category 2 – The order could not flow through because of CLEC input error on the LSR
- Category 3 – The order could not flow through because of a Verizon system error
- Category 4 – The order did not flow through for “other Verizon” errors, a catchall for any error type that does not fit into one of the other three error categories.

As of April 1, 2003, Verizon had 12,059 different error types identified in the CAT table.<sup>481</sup> If during processing ACE encounters an error code that is not in the CAT table, it assigns the order a category value of zero. ACE returns all such orders to Verizon’s OR-5-03 metric specialists group for review. Verizon’s review process involves having two people review each order. Both must agree on which of the four error categories this error should fall into, otherwise the decision falls to the group manager. Once Verizon classifies the error, it updates the CAT table to include the error code. ACE then places these orders in the proper category.

ACE uses the results of its error file analysis to determine which orders Verizon must exclude from the daily order file. Verizon excludes orders with an error category of 1 or 2, and includes orders with an error category of 3 or 4. At the end of each month, ACE uses the order files with the category 1 and 2 exclusions removed to calculate the numerator and denominator for the OR-5-03 metric. ACE removes Verizon affiliate and test CLEC orders before calculating the results using the test account flag field. ACE sends the results to Verizon in a spreadsheet.

Due to the complexity of the steps involved in calculating OR-5-03, Liberty did not recalculate this measure. Instead, Liberty tested the accuracy of the processing steps by reviewing selected data. Liberty requested three files of information from Verizon. The first contained all of the PON versions that Verizon confirmed during February 2003. The second and third files contained all of the PON versions that Verizon and ACE included in the numerator and in the denominator for the measure.<sup>482</sup>

Liberty found that Verizon had confirmed a total of 143,463 PON versions during February, of which it excluded 39,566 from the denominator. Of the 39,566 that Verizon excluded, Liberty found that Verizon properly excluded 12,289 as not being flow through eligible. Liberty did not, however, examine the LSRs in detail to determine whether Request Manager had assigned the proper flow through eligibility indicator. Of the remaining 27,277 PON versions, Verizon

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<sup>480</sup> Responses to Data Requests #384, #513, and #514, and clarifying phone conversations with Verizon personnel on April 10 and April 21, 2003.

<sup>481</sup> Response to Data Request #382.

<sup>482</sup> Response to Data Request #516.

excluded 25,647 as test orders or Verizon affiliate orders.<sup>483</sup> Liberty reviewed the excluded affiliate and test orders and concluded that Verizon properly applied the exclusions set forth in the Guidelines.

Liberty found that the remaining 1,630 PON versions that Verizon excluded from the denominator all had a process flow category of 3 or 5. Liberty obtained a copy of the error file associated with a sample of 65 of these orders to determine if Verizon had properly excluded them.<sup>484</sup> Liberty compared the error codes and error message for these 65 orders to the CAT table and found that five were error category of 4, which means that they should have been included in the denominator. Liberty determined that these five orders also had Category 1 errors associated with them, which qualified them for exclusion from the metric per the Guidelines. Verizon indicated that multiple errors could occur against an LSR. When this occurs, Verizon applies logic to determine the final status of the LSR. This logic will review each error category associated with the LSR and, in cases where the LSR had a category 1 or category 2 error, Verizon excludes the LSR from the measure.<sup>485</sup>

Liberty concluded that Verizon’s processing of this metric is consistent with the Guidelines.

### **3. Findings and Recommendations**

**The Guidelines do not specify how Verizon should define the reporting month for the OR-5 metrics.**

Verizon uses the confirmation date to select the orders to be included in the OR-5 measures for a given reporting month. This approach is appropriate. Liberty recommends that Verizon seek clarification to the Guidelines regarding the basis for selecting the orders for these measures.

## **G. OR-6, Order Accuracy**

### **1. Background**

The metrics within OR-6 report Verizon’s order accuracy performance, as measured by the percentage of orders completed as ordered by the CLEC (OR-6-01 and OR-6-02) and the percentage of duplicate LSR confirmations sent as a result of a Verizon error (OR-6-03). The Guidelines indicate that Verizon uses a manual audit process to select a statistically valid, random sample of approximately 400 orders for resale products and 400 orders for UNE products each month (20 orders randomly sampled each business day for each product group). The Guidelines require Verizon to compare a minimum of ten specified fields on the latest version of the LSR to the completed Verizon service order. Verizon is required to correct any service order errors it discovers during the manual audit process, and to notify the CLEC of any such correction.

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<sup>483</sup> Verizon provided lists of test CLEC IDs and Verizon affiliate IDs in response to Data Request #446.

<sup>484</sup> Responses to Data Requests #516 and #695.

<sup>485</sup> Response to Data Request #798.

Verizon reports the three OR-6 sub-metrics by percentage order accuracy, percentage accuracy opportunities, and percentage LSR confirmation accuracy. Verizon reports separate results for resale and UNE products for all three sub-metrics. The exclusions that apply to OR-6 are:

- Orders that flow through without manual intervention
- Orders that are submitted manually when electronic capability is available
- Verizon affiliate data from CLEC results.

Verizon reports these results on a statewide basis for CLECs in aggregate. For OR-6-01, percentage accuracy of orders, the standard is 95 percent of orders. For OR-6-02, percentage accuracy opportunities, there is no standard.<sup>486</sup> For LSR confirmation accuracy, OR-6-03, the standard is less than 5 percent of LSRCs resent due to Verizon error. The IP includes four product results for OR-6-01 and OR-6-03.

## **2. Analysis and Evaluation**

### **OR-6-01 - Percentage Accuracy – Orders and OR-6-02 – Percentage Accuracy - Opportunities**

Measures OR-6-01 and OR-6-02 report two dimensions of order accuracy. OR-6-01 focuses on the number of orders without Verizon errors. OR-6-02 focuses on the percentage of order fields that Verizon populated correctly. Verizon compares required fields on the latest version of the CLEC LSR to the completed Verizon service orders for accuracy.

To calculate the OR-6-01 and OR-6-02 results, Verizon uses a manual audit process to review approximately 1,200 randomly sampled orders each month (400 resale, 400 UNE-P, and 400 UNE orders), more than the number required by the Guidelines.<sup>487</sup> NMP selects the daily sample of LSRs that qualify for inclusion in the metrics based on the following criteria:<sup>488</sup>

- Select only LSRs that have provisioning completion notices<sup>489</sup>
- Select only orders of type T, N, or C<sup>490</sup>
- Eliminate orders that flowed through to Verizon’s backend systems
- Eliminate Verizon affiliate orders
- Eliminate test CLEC orders
- Eliminate orders with PARTS exclusions.

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<sup>486</sup> According to the response to Data Request #733, effective with the April 2003 reporting month, the OR-6-02 sub-metric will not be reported in any other state than New Jersey.

<sup>487</sup> Response to Data Request #255.

<sup>488</sup> Response to Data Request #134.

<sup>489</sup> Effective with the May 2003 data month, Verizon will change this criterion to orders that have billing completion notices.

<sup>490</sup> N orders are new installations, C orders are changes or modifications to an existing account, and T orders are an outside move of an end users location. By limiting the selection to these order types, Verizon removes less complex orders such as record orders and disconnects from the sample population.

Once it identifies the sample universe, Verizon uses the Oracle random sample generator to select approximately 20 resale, 20 UNE-P, and 20 UNE-L orders to use in its analysis for the OR-6 metric.<sup>491</sup> The Oracle random sample generator is an embedded process in NMP’s daily job process. Verizon’s policy is to pull the sample once per day to maintain the integrity of the random nature of the sample selected.<sup>492</sup>

Liberty reviewed the process by which Verizon performed the selection of orders to determine whether it in fact was a random selection. Liberty found that Verizon’s use of the Oracle random sample generator is an appropriate means with which to obtain a truly random selection of orders. A sample size of 400 orders per product per month (if achieved) provides adequate precision for the calculations. Assuming an achieved level of 90 percent on these measures, a sample of 400 orders per product will provide a level of precision within a range of +/-3 percent.

Although Verizon sets as its objective a sample size of 400 orders per product type per month, it typically does not meet it. In February 2003, Verizon could use only 775 (65 percent) of the 1,200 orders that NMP selected toward the metric calculation. In March, Verizon reported only 764 observations (63.6 percent). Liberty learned that Verizon excludes many orders from the sample population because the internal service order that NMP selected may be the retail order associated with a PON.<sup>493</sup> In these cases, Verizon cannot compare the retail order to the LSR for accuracy. Verizon’s current process does not allow it to go back into the system to pull the appropriate wholesale service order for the comparison, so it excludes the retail order from the measure. Verizon indicated that it has two process improvements scheduled for the May 2003 data month. One of these process improvements will give NMP the ability to recognize the retail service order and only select the wholesale order for the OR-6 sample. The other process improvement will establish a pool of reserve LSRs and associated service orders that Verizon can use should a case arise where it cannot achieve the objective sample. Verizon also indicated that there is another process improvement scheduled for the October 2003 data month that will allow the NMP system to pull all of the associated wholesale service orders associated with a PON.<sup>494</sup>

Verizon feeds the sampled orders to a GUI tool that it built into the NMP system. This tool, known as NMP GUI, performs automated checks on the key service order fields that Verizon uses to make the order/field quality determination for these metrics. These fields, which Verizon stated CLECs agreed to in collaborative sessions with Verizon, include the following.<sup>495</sup>

- Billed Telephone Number
- RSID or AECN
- PON Number
- Telephone Number (if applicable)

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<sup>491</sup> The daily sample may be more or less than 20 per day depending on the number of business days in the month. Verizon will pull a sufficient quantity of orders daily to meet the 400 per product per month objective.

<sup>492</sup> Response to Data Request #385.

<sup>493</sup> A single CLEC PON will often generate multiple internal Verizon service orders. For example, in the case of a migration of a retail account to a UNE-loop, there will be a disconnect service order for the retail service and a connect service order for the UNE-L.

<sup>494</sup> Responses to Data Requests #732 and #736.

<sup>495</sup> New Jersey C2C Guidelines, page 43.

- Ported TN (if applicable)
- Circuit ID (if applicable)
- Directory Listing Information (if included)
- E911 Listing Information (if changing and appropriate)
- Features (for resale, UNE-P and switching orders)
- Application Date<sup>496</sup>
- Due Date
- Remarks (if applicable).<sup>497</sup>

For every PON that is included in the sample, the NMP GUI report will have two boxes for each of the key fields examined by the system. One box represents the field on the LSR and the other box represents the comparable field on the service order. The output of the system is a GUI screen showing the results of its comparison of these fields for each of the PONs selected, one screen per PON. The following is the formula used by the system to report out on the results of the mechanized analysis:

- Any number (usually a 1)<sup>498</sup> in the LSR field and a 1 in the service order field = a mismatch
- A zero in the LSR field and a zero in the service order field = a null value
- Any number (usually a 1)<sup>499</sup> in the LSR field and a zero in the service order field = a match.

On a daily basis Verizon reviews all of the null and mismatch values for accuracy, but performs no review of the values that the NMP GUI indicated were a match.<sup>500</sup> There are two people who perform this OR-6 review work. One of these people focuses on the Verizon-North states and the other on the Verizon-South states. They act as backup for each other for vacations and other absences. Should the Verizon person conducting this manual review of the nulls and misclassified fields find that the system incorrectly classified a field, the reviewer will manually adjust the system error directly on the GUI screen.<sup>501</sup> Verizon does not document manual changes it makes to the NMP-GUI output. However, it does retain the screen and associated service orders and PON for 5 years for review purposes.<sup>502</sup> Verizon indicated that the objective of the review and associated metrics is to ensure that the customer got exactly what was ordered and not that the service order exactly matched the LSR. In some cases, a system mismatch does not result in an incorrect order. For example, the CLEC could use two different USOC codes on its LSR to order two features for its customer, but the Verizon service order could use a different single USOC that will provision the same two features. Though this is a system mismatch, it does not result in an inaccurate service order and therefore should not count against the measure.

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<sup>496</sup> This field applies to New Jersey only.

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<sup>500</sup> Response to Data Request #387.

<sup>501</sup> Response to Data Request #388.

<sup>502</sup> Response to Data Request #734.

In cases where the CLEC requested an interval that is less than the standard interval yet Verizon returns the standard interval as the due date, the NMP-GUI will return these as a mismatch between the PON and the service order. Verizon will manually correct these to a match on the NMP-GUI screen as long as the due date provided by Verizon is within the standard interval for the product ordered.<sup>503</sup>

Verizon does not include directory listing (DL) orders that it issued as record changes (R orders) in the sample population for this quality check of the metric. Under the ordering business rules, Verizon issues all standalone LNP and UNE-Loop directory listing orders as R orders.<sup>504</sup> Therefore, Verizon does not subject these orders to this quality review; the Guidelines do not specify the exclusion of these orders.

Prior to the November 2002 data month, Verizon had a problem with the MISOS sales code extensions that prevented the NMP system from matching the LSRs with their associated service orders 80 percent of the time, thereby having an extreme effect on the number of orders included in the sample. Verizon corrected this problem for the November 2002 data month.<sup>505</sup>

On April 29, 2003, Liberty observed Verizon’s daily NMP-GUI review process.<sup>506</sup> Liberty observed that the person performing this work was very knowledgeable about her job and the wholesale services and products offered by Verizon. Verizon indicated that the same people who are responsible for this manual review are also responsible for identifying and inputting change control notices to further mechanize the process. Prior to the middle of 2002, the entire process for this comparison was manual with a large group of Verizon associates “staring and comparing” the critical fields on the LSR to the service order for quality purposes. The changeover to the NMP-GUI automated process is still evolving, as evidenced by the number of outstanding process improvements.<sup>507</sup> Yet, the LSR to service order quality review remains a highly manual process that is somewhat complicated and subject to human error. Currently, the automated process is unable to determine the status of some of the fields (*e.g.*, the desired due date) and these fields must always be manually checked. The reviewers must check other fields simply because Verizon has not advanced the NMP-GUI logic enough to determine whether there was a discrepancy between the LSR and the service orders.

While Liberty was observing the daily process, it observed that the service representative doing the review made a mistake on one of the fields, incorrectly changing it to a match when it should have remained as a mismatch. The representative was comparing the interval offered to the interval requested and interval confirmed for a given order. To determine whether the service order was correct, the Verizon person referred to the standard interval guide to determine which interval was correct. In this case, she made the wrong determination, resulting in the error. Errors such as these will make Verizon’s performance on the OR-6-01 and OR-6-02 measures appear to be better than actual.

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<sup>503</sup> Response to Data Request #735.

<sup>504</sup> Response to Data Request #737.

<sup>505</sup> Addressed on change control notice CCNJ2003-07917-Ord.

<sup>506</sup> Interview #51, April 29, 2003.

<sup>507</sup> Responses to Data Requests #732 and #736.



Verizon indicated that they do not make a comparison between the LSR and the Customer Service Record (CSR) because the CSR is a mirror image of the service orders that it uses to provision the service. Therefore, any problem on the CSR is a result of what was on the service orders making a review of the service orders sufficient.<sup>508</sup>

For the OR-6-02 metric, the value shown in one of the fields on the NMP screen is the value that counts as an “opportunity.” For example, if a particular PON had 12 fields that were compared and one of the fields had a value of 4 (e.g. the LSR contained 4 features), then the denominator for the OR-6-02 metric for that PON would be 15 (11 fields with a value of 1 and one field having a value of 4). This method does not conform to the Guidelines, which state that the denominator is a “count of fields sampled for the specified product.”

Once Verizon completes the review of the null and mismatch fields and makes all changes to the NMP-GUI screen, the reviewer will mark the PON as complete and send the screen back to NMP for metric calculation purposes. At the end of the month the NMP system uses the manually reviewed NMP GUI screens for the calculation of the OR-6-01 and OR-6-02 metrics for that month. The formula for the OR-6-01 measurements is:

- Numerator: The count of orders sampled minus orders with Verizon errors for the specified product
- Denominator: The count of orders sampled for the specified product.

The formula for the OR-6-02 metric is:

- Numerator: The count of fields sampled less fields with Verizon errors for the specified product
- Denominator: The count of fields sampled for the specified product.

Due to the manual nature of these two measures, Liberty did not attempt to replicate them.

For the period of November 2001 through November 2002, Verizon made no penalty payments for the OR-6 measures. However, Verizon subsequently missed this measure for the UNE product in December, January, and February, and was required to make penalty payments. Verizon attributed this sudden drop in performance to a physical change in the work location for the service representatives who create the service orders, and the adjustment of these service representatives to revised intervals in the standard interval guide. Liberty requested the OR-6 results for the other Verizon-South states for the July 2002 to March 2003 timeframe in order to assess whether the negative trend in New Jersey was present in other states. Liberty found that this was not the case. The results on this metric for Maryland, Virginia, West Virginia, Delaware, and Pennsylvania remained fairly constant around the 95 percent range during this timeframe. Only New Jersey experienced this degradation in performance on this measure. This is an indication that Verizon’s explanation is without merit, as these same factors should have impacted the other states equally. Liberty cannot form an opinion as to why Verizon’s New Jersey’s results took a dip during this three-month period.<sup>509</sup>

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<sup>508</sup> Response to Data Request #739.

<sup>509</sup> Response to Data Request #731.

### OR-6-03 – Percent Accuracy LSRC

The OR-6-03 sub-metric is a measure of the percentage of total LSRCs sent during the month that Verizon resent due to its own error. Unlike the OR-6-01 and OR-6-02 measures, this measure is based on 100 percent of the confirmations sent during the month and is not based on a sample.

Whenever the Verizon NMC sends a duplicate confirmation, the NMC service representative has to populate the EC\_Version field in the Request Manager GUI. Verizon uses this field to designate confirmations that it resent due to its own error. A third value character of “E” in this field designates that Verizon had to resend the confirmation due to a Verizon error. Verizon sends this EC\_Version field to NMP in the source files from Request Manager. Verizon counts all confirmations with an EC\_Version field that contains an E in the third character against Verizon in the calculation of this metric.<sup>510</sup>

Verizon’s process to determine whether an order qualifies for inclusion in the OR-6-03 metric is strictly dependent on manual input. Liberty found that the primary data field (EC\_Version) to determine whether Verizon sent duplicate LSRCs as a result of a Verizon error is based solely on an error code that the NMC service representative inputs manually. Liberty did not audit the process used or the guidelines that the NMC service representatives are instructed to follow when deciding what code to use on resent LSRCs. Although Liberty did not find anything wrong with the system logic that Verizon uses to calculate this measure, any time a key data field is left open to human decision there is opportunity for error. Any misclassification of this field by the NMP service representatives, whether by error or intentional, will lead to a misrepresentation of Verizon’s performance on the OR-6-03 metric.

Liberty examined the algorithm that Verizon uses to calculate the OR-6-03 metric. The key fields in the LSR Order Fact table for the calculation of this measure are the Verizon-resent counter and the confirmation counter. The Verizon-resent counter indicates the total number of confirmations on a PON version that Verizon sent due to its own error, and the confirmation counter indicates the total number of confirmations that Verizon sent on a PON version. Liberty also checked the logic of the algorithm and found that Verizon was correctly applying the exclusions specified in the Guidelines for this measure.

The formula for the OR-6-03 measure set forth in the Guidelines is:

- Numerator: The count of LSR confirmations resent due to Verizon error
- Denominator: The count of all LSR confirmations.

Liberty replicated Verizon’s February 2003 reported results for OR-6-03-2000 (resale) of 0 percent, with a denominator of 2,522 confirmations, and for OR-6-03-3000 (UNE) of .05 percent, with a denominator of 15,217 confirmations.

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<sup>510</sup> Response to Data Request #391.

### 3. Findings and Recommendations

**Verizon's current sampling process for OR-6-01 and OR-6-02 does not guarantee that the objective sample size of 400 orders per product per month as required under the Guidelines will be achieved.**

Verizon indicated that there are system process improvements scheduled for the May 2003 and October 2003 data months that will address this issue. The two scheduled for May will recognize the retail service order and only select the wholesale order for the OR-6 sample and will establish a pool of reserve LSRs and associated service orders that Verizon can use should a case arise where the objective sample cannot be achieved. The October release will allow the NMP system to pull all of the associated wholesale service orders associated with a PON. If Verizon implements these process improvements as indicated, the problem will be resolved. However, the sample count will have to be monitored post implementation by Verizon and the Board to ensure that the changes produced the expected results.

**Verizon does not subject directory listing orders for UNE products to the order quality check of OR-6 and excludes orders other than those listed in the Guidelines.**

As a result of Verizon's policy to not including record type orders in the sample population directory listing orders for facility based CLECs are never subjected to the quality check. Because of the importance of these orders to the CLECs and their customers, Liberty recommends Verizon change its policy on R orders when they are associated with a directory listing activity. In addition, Verizon's practice effectively creates an exclusion that the Guidelines do not list.

**Because of the manual nature of the review process for OR-6, results are subject to inaccuracy due to human error.**

Liberty recommends that Verizon undertake an effort to improve the NMP logic to drastically reduce the number of invalid null and mismatch values it currently returns. However, Liberty also must point out that, more importantly, Verizon should attempt to improve its flow-through achieved results as the more orders that achieve flow through, the less important this quality check becomes, as it only applies to orders that fall out for manual handling. Liberty believes that if there were a tradeoff on system development resources between improving flow-through achieved results or improving the quality of the automated check of the LSR as compared to the service order, the resources should focus on flow-through improvements.

Currently there are two people who perform the NMP-GUI review process. These two people serve as a backup for each other. Verizon indicated that the normal daily workload requires nearly a full day. During absences of one of the reviewers, the other will have a very heavy workload, which could contribute to errors. Liberty recommends that Verizon train additional staff for this work.

**Verizon’s method of counting field values rather than fields for the OR-6-02 metric is in conflict with the Guidelines.**

The Guidelines for the numerator and denominator for the OR-6-02 metric state “count of fields samples,” yet Verizon is counting each value in the field as an opportunity, thereby overstating the opportunities reported. Liberty recommends that Verizon count the fields as opposed to the field values as stated in the Guidelines.

## **H. OR-7, Percent Order Confirmations/Rejects Sent Within Three Business Days**

### **1. Background**

The metrics within OR-7 report Verizon’s performance in issuing a confirmation or rejection on a LSR within three business days of receiving it. The OR-7 metric applies only to orders submitted to Verizon via the EDI interface, and measures the completeness, rather than the timeliness, of the confirmation or rejects.

Verizon reports results for the one sub-metric within OR-7 separately by resale, UNE loop, and UNE platform products. The exclusions that apply to OR-7 are:

- LSRs cancelled prior to confirmation or rejection when the CLEC’s cancellation notice was received by Verizon within three business days after Verizon’s receipt of the LSR
- LSRs that were supplemented prior to the confirmation or reject
- Edit rejects that are not eligible for confirmation or rejection
- Orders submitted either manually or through the Web GUI
- Verizon affiliate data from CLEC results.

Verizon reports these results on a statewide basis by CLEC specific and CLEC aggregate. The standard for the OR-7 measures is 95 percent order confirmations/rejects sent within three business days. The three product results for OR-7 are included in Verizon’s IP.

### **2. Analysis and Evaluation**

Verizon’s NetLink system records the date and time that Verizon receives the LSR via EDI both before and after decryption. Verizon’s Request Manager system records the date and time of receipt when it receives LSR information on EDI orders from NetLink. Similarly, Request Manager records the date/time of the confirmation or rejection, and then sends a trigger message to NetLink to create and send the notice via EDI. Essentially, the receipt date/time in NetLink is earlier than that in Request Manager, and the confirmation or rejection date/time in NetLink is later.

When NMP constructs the LSR Order Fact table, it initially populates the receipt date/time and confirmation or rejection date/time fields with the data from Request Manager. If NMP receives a record for a given PON from NetLink, it will overlay the receipt date/time and confirmation or rejection date/time with the data from NetLink. NMP also records the source of these dates and times in the receipt source, confirmation source, and rejection source fields.

Under the Guidelines, the relevant timestamp for “receipt” of the LSR is after Verizon’s NetLink system has received it and completed any decryption, parsing, and translation. The relevant timestamp for “sending” the confirmation or rejection notice is when Verizon’s NetLink system sends it, following any translation and encryption of the notice.

Verizon selects all orders that it receives via EDI as the relevant population for the measure (regardless of whether the receipt date/time is from Request Manager or NetLink). However, Verizon counts the LSR as a miss unless the confirmation or rejection source was NetLink. The timestamps that Verizon uses to calculate the OR-7 metric are therefore consistent with the definition in the Guidelines.<sup>511</sup>

The Guidelines state that if Verizon’s NetLink system delays the processing of the LSR prior to applying the timestamp for receipt, Verizon should adjust the timestamp to indicate when, in the absence of the delay, the timestamp would have been applied. Verizon indicated that this language refers to situations where there is a transmission problem between NetLink and Request Manager. Verizon indicated that the language of the Guidelines is no longer necessary, since Verizon uses the EDI timestamp from NetLink, not the time in Request Manager, as the LSR receipt time. Verizon is therefore properly applying the definition in the Guidelines.<sup>512</sup>

Verizon uses only LSR Order Fact table data for this measure (the Guidelines state that the source for the data is the Master PON file, and Verizon should seek a clarification to the Guidelines to change this language). The key data fields in the LSR Order Fact table for the OR-7 measure are the CLEC ID, PON, PON version, receipt date/time, order origin (EDI, Web GUI, fax), order type (whether resale, UNE platform, or UNE loop), confirmation type, confirmation source, rejection source, OR7 exclusion indicator, test account flag, and on-time indicator. Verizon uses the confirmation type field to select certain types of PON versions that it excludes from the OR-7 metric. Verizon uses the OR-7 exclusion indicator to flag special projects, based on a look-up table of such projects maintained in NMP.<sup>513</sup> The confirmation source and rejection source fields indicate whether the timestamp was from NetLink or Request Manager.

Verizon’s NMP system assigns the on time indicator a value of Y if the difference between the receipt date/time and the confirmation or rejection date/time is three business days or less. Liberty reviewed the assignment of the on time indicator and found that NMP calculated it correctly. In cases where Verizon has issued both a rejection and a confirmation on the same PON version, NMP will calculate the indicator using the latter event.<sup>514</sup>

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<sup>511</sup> Response to Data Request #510.

<sup>512</sup> Response to Data Request #705. Verizon clarified that the language in the Guidelines was added when it used the EcXpert system, which it no longer does.

<sup>513</sup> Response to Data Request #706.

<sup>514</sup> Response to Data Request #709.

Liberty concluded that Verizon’s definitions for the key data fields used to calculate the metrics are consistent with the Guidelines.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon includes only those orders that CLECs submit using EDI, and thus appropriately excludes Web GUI and any other LSR orders not submitted electronically. Verizon excludes test orders and Verizon affiliate LSR orders by a logic step in its algorithm that screens out records that have a test account flag, which NMP calculates on the basis of a look-up table of test CLEC IDs, VADI, and Verizon affiliate IDs.<sup>515</sup> The Guidelines do not specifically state that Verizon should exclude test orders. This exclusion is reasonable and consistent with the other OR measures, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

The Guidelines state that Verizon should exclude from the measure edit rejects that would not be eligible for confirmation or rejection. Verizon indicated that orders that it rejects during basic front-end edits never get to the service order processor, and are therefore never sent to NMP. Therefore, Verizon includes no such orders in the OR-7 results.

The Verizon source system assigns a confirmation type value of “N” to any PON version that is a CLEC supplement to cancel the order. It also assigns a value of “S” to any PON version that is cancelled at Verizon’s request.<sup>516</sup> Verizon’s algorithm excludes any PON version marked as a cancellation from the metrics. However, to the extent that Verizon confirms or rejects an earlier version of the PON, Verizon appropriately counts it in the results.<sup>517</sup>

The Guidelines also state that Verizon should exclude LSRs that CLECs supplemented prior to confirmation or rejection. Verizon does not necessarily send a confirmation or rejection for every PON version submitted. If, for example, a CLEC submits three versions of a PON prior to the time Verizon confirms the order, Verizon will send the confirmation on the latest version, and will not confirm or reject the first two.<sup>518</sup> The NMP system assigns a confirmation type value of “Z” to any PON versions that Verizon never confirms or rejects, and Verizon’s algorithm excludes these versions from the measure.<sup>519</sup> Liberty checked several of the PON versions that were marked in this fashion and found that Verizon properly assigned the confirmation type value.

Although not specified in the Guidelines, Verizon excludes special project PONs from the OR-7 metrics. Verizon adds these PONs to a look-up table within NMP that the system uses to assign a

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<sup>515</sup> Response to Data Request #383.

<sup>516</sup> In response to Data Request #707, Verizon clarified that it assigned an “S” to the confirmation type field when an order had been in jeopardy/query status over thirty days with no response from the CLEC. The Guidelines do not address Verizon initiated cancelled orders, but since Verizon does not receive these LSRs in the reporting period, they are not eligible to be counted in the denominator. There were no LSRs with a confirmation type of “S” in February 2003.

<sup>517</sup> In response to Data Request #708, Verizon stated that it did not have to consider the three-day window for this exclusion, since it globally excludes LSRs cancelled prior to confirmation or rejection regardless of the number of business days under the exclusion of “LSRs that were supplemented prior to confirmation or rejection.”

<sup>518</sup> Response to Data Request #338.

<sup>519</sup> Response to Data Request #355.

“C” in the OR7 exclusion indicator field for these PONs.<sup>520</sup> Verizon’s algorithms then exclude PONs with this value. This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

Liberty examined the algorithms that Verizon uses to calculate the OR-7-01 measure. The formula for the OR-7-01 metric set forth in the Guidelines is as follows:

- Numerator: The total LSR confirmations plus rejections sent within 3 business days of LSR submission.
- Denominator: The total LSRs received during the reporting period.

To calculate the denominator for the measure, Verizon counts the number of PON versions that it received via EDI during the reporting month, excluding those consistent with the Guidelines. To calculate the numerator, Verizon counts the number of PON versions identified in the denominator that have rejections or confirmations within three business days of receipt.<sup>521</sup> However, per the Guidelines, Verizon counts only those that have a confirmation or rejection source of NetLink. Verizon uses separate algorithms to calculate results for each of the three product groups.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result for OR-7-01-3112 (UNE POTS Loop/Pre-qualified complex/LNP) for February 2003 using the LSR Order Fact table that Verizon provided.<sup>522</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 99.10 percent.<sup>523</sup>

### **3. Findings and Recommendations**

#### **Verizon’s methods for calculating OR-7 are reasonable but not consistent with the Guidelines.**

Liberty identified three areas in which Verizon’s methods for OR-7 are reasonable but are not consistent with the Guidelines. In all three of the following cases, Liberty recommends that Verizon request a revision to the Guidelines:

- Verizon appropriately uses the NMP LSR Order Fact table data for the calculation of this measure whereas the Guidelines state that the source for the measure is the “Master PON File.”
- Verizon excludes test CLEC orders from the metric calculation.

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<sup>520</sup> In response to Data Request #706, Verizon clarified that it excludes the same special project PONs from OR-7 that it does from the non-flow through OR-1 and OR-2 metrics.

<sup>521</sup> Verizon counts the number of records that have an on time indicator of Y.

<sup>522</sup> Response to Data Request #580.

<sup>523</sup> Verizon reported a denominator of 2,792 and Liberty’s result was identical.

- Verizon excludes special project orders from the calculation of the metric.

## **I. OR-8, Acknowledgement Timeliness**

### **1. Background**

The OR-8 measure reports Verizon’s performance in acknowledging LSRs within two hours. Under the Guidelines, the time interval begins when Verizon receives the LSR and ends when Verizon sends an acknowledgement. This metric applies only to LSRs that CLECs submit via EDI. As such, the Guidelines exclude orders submitted by CLECs via the Web GUI interface and any other orders not submitted electronically.

Verizon reports OR-8 results on a statewide basis by individual and aggregate CLECs. Verizon reports the one sub-metric within OR-8 by resale and UNE products. The standard for the OR-8 measure is 95 percent of order acknowledgements sent within two hours, and both product results are included in Verizon’s IP.

### **2. Analysis and Evaluation**

Verizon’s NetLink system is its interface for receiving EDI LSR orders. The NetLink system maintains order status files and captures timestamps for various activities associated with EDI orders such as receipt, acknowledgements, and confirmations. The NetLink system sends an electronic acknowledgement to the CLEC that a file has met basic edits with valid and complete data and that Verizon will process it.

Verizon’s NetStatus system extracts and formats LSR timestamp information from EDI/NetLink, and provides daily files to NMP for storage in the NMP warehouse.<sup>524</sup> To calculate the metrics, Verizon selects the acknowledgement records from the NMP warehouse that had either a receipt date or an acknowledgement date within a given month, and places those records into the Order Acknowledgement table used by Verizon’s metrics algorithm.<sup>525</sup>

Under the Guidelines, an LSR is “received” when Verizon’s NetLink system receives it, prior to any decryption, parsing, and translation. The acknowledgement is “sent” when Verizon’s NetLink system sends an acknowledgement, following any translation and encryption of the acknowledgement. The NetLink timestamps that Verizon uses to calculate the OR-8 metric are consistent with this definition.<sup>526</sup>

To calculate the OR-8 (and OR-9) metric, Verizon uses the Order Acknowledgement table data, which it creates from data that NMP collects from NetLink.<sup>527</sup> To test the accuracy and

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<sup>524</sup> Response to Data Request #331.

<sup>525</sup> Response to Data Request #684 (revised).

<sup>526</sup> Response to Data Request #510.

<sup>527</sup> There were 113,535 records in the table, and Verizon included 11,686 in resale and 113,535 in UNE results.



completeness of the data, Liberty selected all of the acknowledgements for one CLEC as recorded in the Order Acknowledgement data, and attempted to match those to orders in the LSR Order Fact data, and vice versa. Liberty found that there were 569 EDI orders (PON versions) but only 534 acknowledgements for this CLEC. Verizon subsequently clarified that it does not send NetLink acknowledgement data to NMP for an EDI file unless the PON version passes Request Manager front-end edits and is then rejected or confirmed.<sup>528</sup> Verizon indicated that the CLEC supplemented the 35 PON versions without an acknowledgement (roughly 6 percent of those submitted by the CLEC) before they could pass the Request Manager front-end edits.

The language in the Guidelines for OR-8 is somewhat ambiguous on this issue. The Guidelines state that an LSR is considered as received when Verizon’s NetLink system receives it (prior to any decryption, parsing, and translation), which implies that processing by Request Manager is not required. However, the Guidelines also state that an electronic acknowledgement indicates that the file has met basic edits with valid and complete data and Verizon will process it, which indicates that processing by Request Manager may be required. Verizon’s approach to the measure is reasonable, but recommends that Verizon seek a clarification to the Guidelines to specify that it excludes EDI file acknowledgments that are associated with files that do not pass Request Manager front-end edits or are not confirmed or rejected.

The key data fields in the Order Acknowledgement table are the CLEC ID, PON, PON version, receipt date/time, acknowledgement date/time, order type (resale, UNE) and on time indicator. Verizon’s NMP system assigns the on time indicator a value of Y if the difference between the receipt date/time and the acknowledgement date/time is two hours or less.<sup>529</sup> Liberty reviewed the assignment of the on time indicator and found that Verizon determined it correctly.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon indicated that it excluded Verizon affiliate data through the use of a look-up table in NMP, and such orders are not included in the Acknowledgement Data.<sup>530</sup> Verizon includes only those orders that CLECs submit via EDI, and thus appropriately excludes Web GUI and any other LSR orders not submitted electronically.

The Guidelines for this measure do not specifically state that Verizon should exclude test orders. Verizon excludes test CLEC IDs through the use of a look-up table in NMP, and such orders are not included in the Acknowledgement Data.<sup>531</sup> This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

Liberty examined the algorithm that Verizon uses to calculate each product-group specific result for the OR-8-01 measure. The formula for the OR-8-01 metric set forth in the Guidelines is as follows:

- Numerator: The number of LSR acknowledgements sent within 2 hours of LSR receipt
- Denominator: The total number of LSR acknowledgements sent.

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<sup>528</sup> Response to Data Request #710.

<sup>529</sup> Response to Data Request #624.

<sup>530</sup> Response to Data Request #683.

<sup>531</sup> Response to Data Request #682.

To calculate the denominator for the measure, Verizon counts the number of PON versions for which it sent an acknowledgement during the reporting month. To calculate the numerator, Verizon counts the number of these acknowledgements that it sent within 2 hours of the receiving the LSR.<sup>532</sup> Verizon calculates product group-specific results within the same algorithm and reports them separately.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result for OR-8-01-3000 (UNE products) for February 2003 using the Order Acknowledgement table that Verizon provided.<sup>533</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>534</sup>

### **3. Findings and Recommendations**

#### **Verizon’s exclusion of test CLEC orders is reasonable but not consistent with the Guidelines for OR-8.**

Verizon excludes test CLEC orders from the calculation of this metric. This exclusion is appropriate, and consistent with other OR metrics. However, the Guidelines do not list it as a valid exclusion. Liberty recommends that Verizon request a change to the Guidelines to reflect the test CLEC orders exclusion.

#### **Verizon should seek a clarification to the Guidelines regarding its method for including only those acknowledgments associated with rejected or confirmed orders in the OR-8 and OR-9 measures.**

Verizon does not include in an acknowledgement on a CLEC EDI file in reported results unless its Request Manager system confirms or rejects the order. The language of the Guidelines is not clear on this issue. This exclusion is reasonable, but Verizon should request a change to the Guidelines to reflect the exclusion of acknowledgements associated with PON versions that Verizon never rejects or confirms.

## **J. OR-9, Order Acknowledgement Completeness**

### **1. Background**

The OR-9 measure reports Verizon’s performance acknowledging LSRs the same day that CLECs send them. This metric applies only to LSRs that CLECs submit via EDI. As such, the Guidelines exclude orders submitted by CLECs via the Web GUI interface and any other orders

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<sup>532</sup> Verizon counts the number of PON versions that have an on time indicator of Y.

<sup>533</sup> Response to Data Request #624.

<sup>534</sup> Verizon reported a denominator of 101,849 and Liberty’s result was identical.

not submitted electronically. The Guidelines require that Verizon exclude EDI orders that it receives from CLECs in unreadable files, and that Verizon exclude acknowledgements that it sends to the CLEC that the CLEC reports as being unreadable.

Verizon reports OR-9 results on a statewide basis by individual and aggregate CLECs. Verizon reports the one sub-metric within OR-9 by resale and UNE products. The standard for the OR-9 measure is 99 percent of order acknowledgements sent the same day, and both product results are included in Verizon’s IP.

## **2. Analysis and Evaluation**

As discussed under measure OR-8, Verizon’s NetStatus system extracts and formats LSR timestamp information from EDI/NetLink, and provides daily files to NMP for storage in the NMP warehouse.<sup>535</sup> To calculate the metrics, Verizon selects the acknowledgement records from the NMP warehouse that have either a receipt date or an acknowledgement date within a given month, and places those records into the Order Acknowledgement Fact table used by Verizon’s metrics algorithm.<sup>536</sup> Liberty found that Verizon typically acknowledges the LSR within minutes of receipt (the longest interval was 40 minutes). Verizon also acknowledged all the LSRs that it received after 10 p.m. the same day that it received them.<sup>537</sup>

Under the Guidelines, an LSR is “received” when Verizon’s NetLink system receives it, prior to any decryption, parsing, and translation. The acknowledgement is “sent” when Verizon’s NetLink system sends an acknowledgement, following any translation and encryption of the acknowledgement. The NetLink timestamps that Verizon uses to calculate the OR-9 metric are consistent with this definition.<sup>538</sup> Under the Guidelines, OR-9 includes both positive and negative acknowledgements. Verizon indicated that it sends negative acknowledgements to the CLEC when an order fails basic front-end edits in the NetLink system, and that it includes negative acknowledgements in its data.<sup>539</sup>

The key data fields in the Order Acknowledgement table are the CLEC ID, PON, PON version, receipt date/time, acknowledgement date/time, order type, and on time indicator. Verizon’s NMP system assigns the on time indicator a value of Y if Verizon sent the acknowledgement on the same day as it received the LSR. Consistent with the Guidelines, Verizon indicated that it measures LSRs that it receives after 10 p.m. as though Verizon received them the following day.<sup>540</sup> Liberty reviewed the assignment of the on time indicator and found that Verizon determined it correctly.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon indicated that it excluded Verizon affiliate data through the use of a look-up table in NMP, and

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<sup>535</sup> Response to Data Request #331.

<sup>536</sup> Response to Data Request #684 (revised).

<sup>537</sup> Liberty’s analysis of the February Ordering Fact table received in response to data request #580

<sup>538</sup> Response to Data Request #510

<sup>539</sup> Response to Data Request #685. There were no negative acknowledgements in the data provided by Verizon for the February 2003 reporting month.

<sup>540</sup> Response to Data Request #624.

such orders are not included in the Acknowledgement Data.<sup>541</sup> Verizon includes only those orders that CLECs submit via EDI, and thus appropriately excludes Web GUI and any other LSR orders not submitted electronically.

The Guidelines state that Verizon should exclude orders in unreadable files from the measure. Verizon indicated it cannot determine information on orders in unreadable files, and therefore does not include any information on those orders in the Acknowledgement Data it uses in calculating the measure.<sup>542</sup> The Guidelines also state that Verizon should exclude acknowledgements in unreadable files reported to Verizon by the CLEC. Verizon indicated that this exclusion refers to an occasion when the CLEC cannot read the acknowledgement file that Verizon sends it. In those cases, Verizon can resend the acknowledgement to the CLEC. Verizon considers the second transmission a duplicate and counts only the first acknowledgement in the measure.<sup>543</sup> One can read the Guidelines to mean that Verizon should exclude the first, unreadable, acknowledgement, and include the resent acknowledgement in the measure. From a practical standpoint, Liberty believes that Verizon’s method has a negligible effect on results, but Verizon should seek a clarification to the Guidelines to reflect its interpretation and application of this exclusion.

The Guidelines for this measure do not specifically state that Verizon should exclude test orders. Verizon excludes test CLEC IDs through the use of a look-up table in NMP, and such orders are not included in the Acknowledgement Data.<sup>544</sup> This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

Liberty examined the algorithm that Verizon uses to calculate each product-group specific result for the OR-9-01 measure. The formula for the OR-9-01 metric set forth in the Guidelines is as follows:

- Numerator: The number of LSR acknowledgements sent the same day as the LSR was received
- Denominator: The total number of LSRs received in the calendar month reporting period.

To calculate the denominator for the measure, Verizon counts the number of PON versions that it received during the reporting month. To calculate the numerator, Verizon counts the number of these PON versions for which it sent an acknowledgement the same day as it received the LSR.<sup>545</sup> Verizon calculates product group-specific results within the same algorithm and reports them separately.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

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<sup>541</sup> Response to Data Request #683.

<sup>542</sup> Response to Data Request #686.

<sup>543</sup> Response to Data Request #687.

<sup>544</sup> Response to Data Request #682.

<sup>545</sup> Verizon counts the number of PON versions that have an on time indicator of Y.

Liberty recalculated the CLEC aggregate result for OR-9-01-2000 (resale products) for February 2003 using the Order Acknowledgement table that Verizon provided.<sup>546</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>547</sup>

### **3. Findings and Recommendations**

#### **Verizon’s methods for calculating OR-9 are reasonable but not consistent with the Guidelines.**

Verizon excludes test CLEC orders from the calculation of this metric. This exclusion is appropriate, and consistent with other OR metrics. However, the Guidelines do not list it as a valid exclusion. Liberty recommends that Verizon request a change to the Guidelines to reflect the test CLEC orders exclusion.

Verizon indicated that when a CLEC reports that it cannot read the acknowledgement file that Verizon sent, Verizon resends the acknowledgement. In these cases, Verizon considers the second transmission as a duplicate and only counts the first acknowledgement in the measure. Yet, the Guidelines state that Verizon should exclude acknowledgements in unreadable files, which means that the resent acknowledgement is the one that should be included in the measure. Verizon’s method of treating this exclusion has a negligible effect on the results, but Verizon should seek a clarification to the Guidelines to reflect its interpretation and application of this exclusion.

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<sup>546</sup> Response to Data Request #624.

<sup>547</sup> Verizon reported a denominator of 11,686 and Liberty’s result was identical.

## **V. Provisioning Performance Measures**

### **A. Background Information and Summary of Findings**

The provisioning (PR) domain consists of 9 basic performance measures, 54 metrics, and 273 reported results by product group. There are 68 reported PR results that are relevant to Verizon’s IP. The measures in this domain report:<sup>548</sup>

- Average interval offered
- Average interval completed
- Orders completed in a specified number of days
- Missed appointments
- Missed commitments due to facility reasons
- Installation quality
- Jeopardy reports
- Open orders in hold status
- Hot cut performance.

This first section of this chapter contains a summary of Liberty’s findings and recommendations. The following sections on each of the PR measures contain more specific findings and recommendations. In addition, this first section provides (1) overview descriptions of Verizon’s provisioning process and provisioning metric data to assist the reader in understanding the metric write-ups that follow, (2) an assessment of Verizon’s documentation for the PR domain, (3) Liberty’s assessment of Verizon’s provisioning data integrity, and (4) Liberty’s assessment of some generic aspects of Verizon’s PR metric calculation process.

#### **1. Summary of Liberty’s Findings and Recommendations for the PR Domain**

Liberty found that the overall quality of Verizon’s processes in the PR domain to be not as good as other performance measure areas. Liberty found algorithm problems both during its replication activity and through its analysis of the algorithms. Liberty also found many instances where Verizon inappropriately excluded or included service orders in various sub-metrics. Liberty found some cases in which the retail parity measures Verizon used did not represent a like-for-like comparison with the wholesale experience. During the course of this audit, Verizon issued many change control notices that affected the PR metrics. This is an indication of the lack of stability of these measures.

Liberty successfully replicated the results for all of the PR sub-metrics it attempted to recalculate for the February 2003 data month. Liberty also found that Verizon is generally following the Guidelines by correctly applying exclusions and by properly defining the logic and data fields used to calculate the denominators and numerators in the PR metric calculations. Throughout this audit Liberty found the Verizon personnel assigned to work with Liberty on the provisioning

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<sup>548</sup> C2C Guidelines, April 2002; IP, October 2001; April 2002 (Revised).

metrics to be knowledgeable and cooperative. After an initial slow start, Verizon has been responsive to Liberty’s requests for data and interviews.

Liberty found that Verizon’s documentation of its processes was initially inadequate, and only through informal documents Verizon prepared for interviews with Liberty and responses to many data requests did Verizon describe the processes used to determine PR performance results. For example, in December 2002, Liberty requested a copy of Verizon’s Metric Business Rules, which are the algorithms that Verizon uses to calculate the PR metrics.<sup>549</sup> Verizon was not able to produce a version of these business rules that it believed were complete and accurate until May 28, 2003. In the “Findings and Recommendations” sections below for each of the provisioning metrics, Liberty identified the problems it discovered with Verizon’s processes. In many of these findings, Liberty found that Verizon’s method was reasonable but that Verizon should seek a clarification to the Guidelines to make clear the process it is following. In other instances, Liberty found that Verizon needed to change its methods for making exclusions or calculations to be consistent with the Guidelines. Other of Liberty’s findings involved algorithm issues, and inappropriate exclusions due to Verizon’s process or potential data problems.

Verizon transitioned PR from the Service Order Results Database (SORD) metric system to the NMP system effective with the reported results for November 2002.<sup>550</sup> Verizon still calculates certain metrics, however, outside of the NMP PR domain (such as PR-4-14, PR-6, PR-9-01 and PR-9-09).<sup>551</sup>

## **2. Verizon’s Provisioning Process**

As part of its audit of Verizon’s procedures for processing the PR performance measures, Liberty obtained an overview of Verizon’s business processes and systems that generate the data used for the measures. Liberty reviewed how Verizon captures the raw data and whether it collects and reports all relevant data. Liberty also sought to identify whether there were any significant opportunities for inaccuracies in source data.

Verizon has four service centers that are responsible for handling provisioning activity for New Jersey orders. The Regional Resale Service Center handles all resale and UNE platform orders. The Regional CLEC Control Center handles hot cut coordination on UNE loop orders. The Regional CLEC Loop Provisioning Center handles more complex loop orders such as xDSL loops, line sharing, and line splitting. The Dispatch Resource Center coordinates all dispatch activity for product orders requiring a Verizon dispatch.<sup>552</sup>

CLECs submit requests for services to Verizon through Local Service Requests (LSRs) and Access Service Requests (ASRs). CLECs order all resale products, and most UNE products, via LSRs. CLECs order interconnection trunks, Interoffice Facility (IOF), Enhanced Extended

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<sup>549</sup> Data Request #7.

<sup>550</sup> Response to Data Request #234.

<sup>551</sup> For the PR-6 metrics, Verizon calculates the denominators using data from the PR domain and calculates the numerators using data from the maintenance and repair domain.

<sup>552</sup> Interview #35, April 11, 2003.

Loops (EELs), and UNE DS0, DS1, and DS3 facilities via ASRs.<sup>553</sup> CLECs assign their own purchase order number (PON) to orders, and can supplement or cancel orders using a different version number for the same PON. An LSR or ASR can require more than one service order for Verizon to provision the order. For example, a LSR for a hot cut may require Verizon to issue a “D” disconnect service order and a “N” new service order. Verizon tracks related order numbers on service orders, since changes made on separate orders may be associated in some way.<sup>554</sup>

The Verizon service order processor (SOP) for New Jersey LSR orders, the Minimum Input Service Order System (MISOS), generates one or more service orders for a given CLEC PON once Verizon has confirmed the PON. Some LSR orders can flow through directly to MISOS, and other require manual input by a Verizon National Market Center (NMC) representative before MISOS can create the required service orders. On the retail side, Verizon’s representatives enter retail service orders directly into MISOS.

Verizon’s Request Manager system keeps track of all wholesale service orders related to a given LSR PON. All systems downstream from MISOS process information on the service order level. The Verizon Service Order Analysis and Control (SOAC) system acts as the provisioning system “coordinator” for LSR-related service orders, and sends message to various downstream provisioning systems used during the provisioning process.

The Work Force Administration (WFA) system coordinates and tracks all of the activities associated with a service order. The WFA system provides mechanized and automatic processing of the tasks required during installation of special services, message, carrier, and non-design (POTS) circuits and services. Every order other than record changes must go through the WFA system. The Work Force Administration/Dispatch (WFA/DO) system is a subset of the WFA system that Verizon uses for scheduling and tracking provisioning of service orders that require outside technicians to perform the tasks. The Work Force Administration/Control (WFA/C) system is a subset of WFA that Verizon uses to track activity on complex orders.

Verizon uses the Memory Administration for Recent Change History (MARCH) system to format switch translations and send a message to turn on dial tone or to add, delete, or change features on a telephone line. Verizon uses the Loop Facilities Assignment and Control Systems (LFACS) to inventory, maintain, and assign outside plant local loop facilities. For example, SOAC would send a request to LFACS for the assignment of facilities on new lines. The SWITCH system inventories, maintains, and assigns central office facilities to loops, such as those that connect the outside plant to the central office switch. The Trunk Inventory Record Keeping System (TIRKS) maintains the inventory of interoffice transmission facilities, trunking facilities, and special services and interoffice trunking circuits, and is the primary support system for processing those facilities and services. The SOAC system interfaces with the WFA, MARCH, LFACS, TIRKS, and SWITCH systems as necessary depending upon the product that the CLEC has ordered.

For ASR orders, Verizon NMC personnel create one or more service orders in the Access Service Order Processor (ASOP) system for a given PON. Verizon’s Exchange Access Control

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<sup>553</sup> In some instances, CLECs can order UNE DS0 facilities through an LSR.

<sup>554</sup> Response to Data Request #866.



and Tracking System (EXACT) keeps track of all service orders related to a given ASR PON. The ASOP system acts as the provisioning system coordinator for ASR service orders, and sends messages to various downstream provisioning systems used during the provisioning process. ASOP interfaces with LFACS,<sup>555</sup> TIRKS, and WFA.

The Local Service Management System (LSMS) is the interface between Verizon's Number Portability Administration Center (NPAC) Service Management System (SMS) and the CLEC's Element Management System. The LSMS system maintains CLEC local number portability (LNP) data.<sup>556</sup>

After it creates the service order, Verizon's provisioning systems can often process non-dispatched orders automatically, although in some cases an order drops out for manual handling by Verizon service center technicians. In most cases, the WFA system can close out these orders automatically and assign a work completion date once it has received an indication that the other provisioning systems have completed required functions. After WFA completes the service order, it sends the work completion date to the SOP system.<sup>557</sup> If Verizon completed the order after the due date, however, the non-dispatched orders typically falls out for manual handling.

Whenever Verizon completes an order late, the WFA system requires that Verizon assign a missed appointment code ("MAC code") to the order. Verizon uses a variety of MAC codes that it divides into two categories, customer-caused and Verizon-caused missed appointments. Reasons for customer missed appointments include no access, the customer was not ready, and the customer requested either a later or earlier appointment date prior to the original due date. Reasons for Verizon missed appointments include Verizon equipment, not enough Verizon technicians to complete work on a given day, an assigned cable facility was bad, and the central office could not assign a cable pair by the due date.

For late non-dispatched orders, the service center technicians must enter a MAC code to close out the order. Verizon assigns relatively few MAC codes automatically in WFA. Verizon does not process "R" or records orders through WFA; it processes these orders automatically and the SOP assigns the work completion date.

For dispatched service orders, Verizon schedules the dispatch through the WFA/DO system. After a Verizon field technician completes the required work, he or she closes out the order using the Intelligent Field Access System (IFAS), a hand-held field data collection device.<sup>558</sup> IFAS prompts the technician for certain information about the order through a series of questions. IFAS then sends information on the order to WFA either remotely or through a dial-up connection. WFA then uses the technician's answers to assign such data fields on the order as the MAC code and the work completion date. Verizon indicated that in some cases a field technician needs assistance to close out an order, and that a technician in the provisioning service center

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<sup>555</sup> In response to Data Request #714, Verizon clarified that TIRKS, which inventories fiber cable, is typically used to provision service for DS1 and above products, however in some cases only copper facilities are available, which LFACS inventories.

<sup>556</sup> Response to Data Request #248.

<sup>557</sup> Verizon refers to the date that the WFA system sends the work completion to SOP as the "SPIT date."

<sup>558</sup> Response to Data Request #923.

actually closes out the order. Generally, the WFA system then completes the order, although in some cases the service center technician assigns the work completion date and any required MAC code.

Although at times WFA assigns the MAC code for late orders, in most cases Verizon’s provisioning technicians are responsible for assigning them. Liberty inquired whether Verizon had an internal quality process to validate that it assigned proper MAC codes. Verizon indicated that its specialists perform checks on a regular basis for the correct code. If the specialist identifies an incorrect MAC code, he or she provides feedback to the appropriate center supervisor so that Verizon can address training issues. Supervisors in the centers also perform periodic quality reviews that include checking the accuracy of MAC codes.<sup>559</sup>

### **3. Verizon’s Documentation**

Verizon slowed Liberty’s progress in the audit of the provisioning domain because it was unable to provide Liberty with adequate documentation. Early on, Verizon did not have documentation available to adequately describe its provisioning source systems and NMP, the key data fields, derived fields or indicators, how it applied Guidelines exclusions, and the structure of the data files that it used to calculate the metrics. One reason that Verizon may not have had this documentation in place is because it recently moved the PR domain to NMP, and only completed this in November 2002. Verizon produced a large amount of documentation in preparation for an interview with Liberty in April.<sup>560</sup> In general, this documentation was comprehensive, and covered the provisioning source systems, data flows from the source systems to the NMP warehouse, the data files that Verizon extracts from NMP to calculate the metrics, as well as definitions of data fields and methods for applying exclusions. However, Liberty subsequently had to issue numerous data requests and hold follow-up interviews to clarify certain areas that were either incorrect, or not presented in a clear or complete fashion, in the documentation.

Verizon also slowed Liberty’s analysis of the PR measures by its inability to provide reliable versions of the algorithms that it uses to calculate the PR metrics, the Metric Business Rules. Refer to the introductory section of this report on Verizon’s reporting.

### **4. Verizon’s PR Metric Data**

Liberty reviewed the process by which Verizon extracts data from its legacy source systems and sends them to the NMP data warehouse. Liberty also reviewed the process by which Verizon extracts data from the NMP warehouse and creates the data tables that its metrics algorithms use to process results each month.

Verizon accumulates selected data from provisioning source systems in its NMP data warehouse. Verizon sends information to NMP daily from the service order processors, MISOS and ASOP, as well as from LSMS, EXACT, and WFA/DO. Verizon sends information to NMP from TIRKS

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<sup>559</sup> Response to Data Request #236.

<sup>560</sup> Interview #35, April 11, 2003.

on a weekly and monthly basis, from MARCH on a weekly basis, and from WFA/C on a daily and monthly basis.

Verizon performs a series of transformations on the data from the legacy system files to organize it into the NMP database structure, but Verizon leaves the source data unaltered. During these processing steps, Verizon performs basic error checks on key fields. Any records that fail basic error checks fall to error files. The business owners of the data review these error files and incorporate any valid records back into the NMP warehouse.<sup>561</sup>

To calculate the PR-1 through PR-8 metrics each month, Verizon extracts selected information from the NMP warehouse into data marts, or tables. In addition to fundamental information such as the state, CLEC, service order number, and product, these tables contain certain derived values such as the appointment interval and completion interval. It also calculates indicator fields such as those for dispatch or features, and flag values to indicate test CLEC or administrative orders.

Each month, Verizon creates the LSR Service Order Fact table, which it uses in calculating most of the PR metrics. Verizon selects records to be included in the LSR Service Order Fact table for a given month by extracting from the NMP warehouse/data marts any service orders that have a CRIS completion date within the reporting month.<sup>562</sup> The CRIS completion date is the date the billing for the service order completed in the Verizon Customer Record Information System (CRIS) billing system.<sup>563</sup> It is not clear why Verizon uses the CRIS completion date, rather than the work completion date, to extract orders for the reporting month, since there is usually a lag from work completion to billing completion. Using the CRIS completion date means that Verizon would report some orders completed in February in the March results. However, Liberty concluded that Verizon will eventually report all completed orders and that Verizon's approach is reasonable if not ideal. Verizon also extracts from NMP any cancelled or pending service orders that have a status date within the reporting month. The status date is the date that Verizon sent the information from the source systems to NMP.<sup>564</sup>

Verizon creates an ASR Service Order Fact table, used for trunk and specials product group results for certain PR sub-metrics. Verizon selects records to be included in the ASR Service Order Fact table for a given month by extracting from the NMP warehouse/data marts any service orders that have a status date within the reporting month.<sup>565</sup>

Verizon also creates an LNP Service Order Fact table used for the PR-4-07 sub-metric. Verizon selects records for a given month by extracting from the NMP warehouse/data mart any LNP-only service orders that have a CRIS completion date within the reporting month.<sup>566</sup>

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<sup>561</sup> Response to Data Request #416.

<sup>562</sup> Response to Data Request #852.

<sup>563</sup> Response to Data Request #833 (clarification).

<sup>564</sup> Responses to Data Requests #918 and #921.

<sup>565</sup> Responses to Data Requests #851 and #918.

<sup>566</sup> Response to Data Request #850.

For the PR-9 hot cut metrics, Verizon captures data in its Wholesale Performance Tracking System (WPTS), which is an overlay to the WFA/C system.

## 5. Liberty’s Review of Verizon’s Provisioning Data

One of the elements of Liberty’s audit of the PR metrics was the analysis of the accuracy and completeness of the data that Verizon uses to calculate the metrics. If the data that NMP uses to calculate the metrics is inconsistent with the data captured by Verizon’s provisioning source systems, the results that Verizon reports would be inaccurate, even if it has correctly defined the key variables, properly applied exclusions, and accurately coded its metrics algorithms. Similarly, if data were missing from NMP, Verizon would be underreporting its results.

- Verizon uses the LSR Service Order Fact table from NMP in most of the PR metrics (PR-1 through PR-6, and PR-8). Liberty focused its data analysis efforts on the LSR Service Order Fact table since this data constitutes by far the vast majority of orders.<sup>567</sup>
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- Liberty compared key data fields on the LSR Service Order Fact table to the ordering source data that Liberty received from Verizon.<sup>568</sup> Liberty reviewed the application date, line count, order completion date, and bill completion date provisioning fields to the submission, confirmation, provisioning completion, and billing completion ordering source records for approximately 50 service orders.<sup>569</sup> Liberty found that the data between the source records and the fact table were generally consistent. Liberty asked Verizon to resolve any discrepancies, and Verizon was able to provide a logical explanation for each of the discrepancies between these data sources.<sup>570</sup>

Liberty did not obtain provisioning data from participating CLECs.

Verizon recently opened a change control because it found that it was excluding service orders from provisioning data because it had erroneously identified them as duplicate orders when they were not. Verizon indicated that the programming code it used to identify duplicate service orders used the criteria of region ID, service order type, and service order number. Verizon indicated that it would expand the criteria to include billing telephone number and entity.<sup>571</sup> Verizon estimated the impact for December 2002 at less than 3 percent of service orders. The error was still in place for the February reporting month.

As part of its review of the data in the February LSR Service Order Fact table, Liberty found that approximately 5.2 percent of the service orders were “duplicates” based on only the region ID, service order type, and service order number criteria. According to Verizon, it can reuse service orders numbers in New Jersey after three days of order completion. Because of the reuse of

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<sup>567</sup> For example, there were roughly 900,000 service order records in the February 2003 LSR Service Order Fact table, compared to roughly 48,000 in the ASR Service Order Fact table.

<sup>568</sup> Response to Data Request #506.

<sup>569</sup> Liberty limited its review to fields common to both the ordering and provisioning domains.

<sup>570</sup> Response to Data Request #917.

<sup>571</sup> CCNJ2003-87274-Pro. Response to Data Request #589.

service order numbers by MISOS, Verizon creates a service order key in NMP to identify unique service orders. If the service order number for the “new” service order being sent to NMP already exists in the data warehouse, NMP will verify that the existing warehoused service order is not cancelled or revoked, and that the difference between the status date of the incoming order and the CRIS completion date of the existing warehoused order is greater than three days. If all of these conditions exist, then NMP treats the incoming order as unique and creates a unique service order key for that incoming service order.<sup>572</sup>

Liberty verified this logic using the February data and found that all “duplicate” completed service orders did have a unique service order key and that the difference between the status date and the completion date on these orders was always greater than 3 days. Liberty therefore concluded that all of the completed orders in the LSR Service Order Fact table are unique.<sup>573</sup>

## **6. General Review of Verizon’s Metric Calculation Process**

Liberty’s audit included an examination of the key data fields used by Verizon to calculate the PR metrics to determine if they were consistent with the Guidelines. Liberty assessed whether Verizon correctly calculated any logic flags and any fields derived from source data. Liberty also analyzed whether Verizon adequately implemented the exclusions set forth in the Guidelines for each measure.

In general, Liberty found that Verizon had appropriately defined and calculated key fields. Verizon generally implements the Guidelines exclusions properly. However, Liberty noted certain instances where Verizon should seek clarifications to the language of the Guidelines to reflect how it is applying these exclusions, or to reflect additional exclusions that it makes, such as those for special projects.

Liberty reviewed the programming algorithms that Verizon uses to calculate the PR measures to determine if they produced results that were accurately defined and consistent with the Guidelines. As part of its analysis, Liberty examined how Verizon defined the numerator and denominator of the measures to determine that no orders would fall through the cracks and never be reported. Verizon uses a separate algorithm to calculate each product group result for the PR metrics, and Liberty reviewed these to determine if it was calculating the result correctly and in a manner consistent with the Guidelines. Liberty recalculated the CLEC aggregate and Verizon affiliate results for various sub-metrics as an additional check on the reliability of Verizon’s results.

### **Common Data Fields**

There are certain key data fields that Verizon uses to calculate the majority of the PR metrics. Verizon uses data in the LSR Service Order Fact table for the majority of the PR metrics. Some of the key data fields in the LSR Service Order Fact table are CLEC ID, provider type, service

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<sup>572</sup> Response to Data Request #930.

<sup>573</sup> Liberty did not, however, substantiate whether “duplicate” cancelled orders were in fact unique.

order type (*e.g.*, N, T, or C), order status (*e.g.*, completed or cancelled), original due date, original appointment code, work completion date, global exclusion indicator, exclusion indicator, report period, CISR MAC, and dispatch indicator.

There are similar key data fields in the ASR Service Order Fact table. Both the ASR and LSR Service Order Fact tables contain numerous data fields (such as service class, product indicator, product type, and loop indicator) that Verizon uses to identify and select the products that it reports in the various product groups in the PR metrics.

Verizon uses the provider type field to identify whether the service order is retail, resale, or UNE.<sup>574</sup> Verizon derives this field in NMP by evaluating the inward and outward seller fields for the service order. The possible values for the outward and inward sellers are P (public coin), R (resale), C or A (UNE) and 1 (retail).<sup>575</sup>

Verizon uses the report period field in its metric algorithms to select completed service orders associated with LSRs to be included in the reporting month for the PR-1 through PR-6 and PR-8 metrics. Verizon calculates the report period field in NMP based on the CRIS completion date (the date the billing for the service order completed in the Verizon CRIS billing system).

The original due date and original appointment code are two important data fields for Verizon’s calculation of several PR metrics. Verizon uses the original due date to calculate the appointment and completion interval, and uses the original appointment code to exclude specific orders from certain PR metrics. As part of the ordering process, CLECs specify a desired due date for their order. If the CLEC’s desired due date is consistent with the standard interval for the requested product and activity as specified in the Product Interval Guide,<sup>576</sup> Verizon will confirm that date as the original due date on the order, and in most cases assign the order a “W” original appointment code, which indicates that the CLEC accepted Verizon’s offered due date. For products that require a dispatch (such as new UNE loops or resale POTS), CLECs use the due date availability function in Verizon’s pre-ordering system to determine the next available appointment date for that product. If the CLEC selects this next available date, Verizon will confirm that date as the original due date on the order and in most cases assign the order a “W” original appointment code.<sup>577</sup>

Verizon uses other original appointment codes such as “X” to indicate that the customer requested a due date that was later than Verizon’s standard or offered due date, and “S” to indicate that the customer requested a due date that was earlier.<sup>578</sup> Verizon’s policy for assigning an original appointment code is the same whether the order flows through directly to MISOS, or whether a NMC representative handles the order, which is the case for non-flow through LSRs

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<sup>574</sup> Response to Data Request #855. Verizon indicated that it uses the provider designation of “COIN” in some states, but does not use this designation in New Jersey.

<sup>575</sup> Response to Data Request #845.

<sup>576</sup> Verizon has three Product Interval Guides on its wholesale website: Resale Standard Intervals, UNE-P Standard Intervals, and Intervals for Unbundled Network Elements.

<sup>577</sup> Interview #61, May 29, 2003.

<sup>578</sup> Appendix B to the Guidelines defines the valid original appointment codes. Valid codes are W, X, S, M, R, K, Y, and Z.

and all ASRs. Verizon uses the same original appointment codes for its retail orders, except that the code reflects the due date choice of the retail customer rather than the CLEC.

When the Product Interval Guide lists the interval for a product as “negotiated,” Verizon processes the order through its NMC. The Verizon policy is to assign an original appointment type code of X to such orders, regardless of whether the CLEC accepted the offered due date. This treatment means that Verizon excludes such orders from certain PR metrics (such as PR-1 through PR-3).<sup>579</sup> Verizon reflects this interpretation for the X appointment type code in its metrics documentation for ASR-related service orders, but not for LSR-related service orders.<sup>580</sup>

The Product Interval Guide defines the term “negotiated” for UNE-P products as referring to the internal Verizon negotiation done within various provisioning organizations.<sup>581</sup> It does not refer to negotiation with the CLEC. Verizon indicated that such orders typically involve a large volume of lines, which is why it negotiates a due date with the CLEC.<sup>582</sup> Because of the extended intervals typically associated with such negotiated orders, this exclusion is reasonable.<sup>583</sup> Liberty recommends that Verizon seek a clarification to the Guidelines to allow Verizon to exclude these orders.

Although it always assigns an original due date to an order, Verizon does not always assign an original appointment code. For example, Verizon does not assign this code for R (record) orders, for D and F (disconnect) orders, and for snip-and-restore orders. Because the original appointment code field is a critical variable in most of the PR metrics,<sup>584</sup> Liberty reviewed this data field in the February LSR Service Order Fact table data that Verizon provided.<sup>585</sup> Liberty found nearly 9,000 C (change) and N (new) service orders that contained a null value in this field.<sup>586</sup> Verizon stated that it investigated a “sample” of these orders and found them to be “mostly” suspend orders.<sup>587</sup> Liberty believes that Verizon has not yet fully explained why these C and N orders have no original appointment code. Liberty recommends that Verizon continue to research this issue and report to the Board its findings and any corrective action that it must take.

Liberty also found that Verizon was incorrectly calculating the “W-coded” indicator field that it uses to identify ASR-related service orders for UNE specials, IOF, and EEL products where the customer selected the standard offered interval. For the PR-1 and PR-2 metrics, Verizon should exclude service orders where the customer selects a due date greater or less than the standard interval, and Verizon uses the W-coded indicator field to accomplish this exclusion.<sup>588</sup> Liberty

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<sup>579</sup> Response to Data Request #716.

<sup>580</sup> Response to Data Request #584, LSR Service Order Fact and ASR Service Order Fact table field descriptions.

<sup>581</sup> This definition can only be found in the UNE-P section of the Product Interval Guide.

<sup>582</sup> Interview #61, May 29, 2003.

<sup>583</sup> In response to Data Request #926, Verizon clarified that the orders with a “negotiated” interval are different from those that it treats as special projects.

<sup>584</sup> This field is a key variable in the calculation of the PR-1 through PR-6 and PR-8 metrics. In general, Verizon will either exclude or treat incorrectly valid C and N service orders have no original appointment codes.

<sup>585</sup> Response to Data Request #582.

<sup>586</sup> There were a total of 8,824 orders, of which 142 were resale, 2,718 were UNE, and 5,964 were retail.

<sup>587</sup> Interview #62 (written response), June 5, 2003.

<sup>588</sup> The exclusion also applies to PR-3, however Verizon does not report any products ordered via ASRs for this metric. Verizon also uses this field to select W-coded orders reported in PR-4-09 UNE specials, IOF, and EEL product results.

found that NMP set the W-coded indicator field to Y if the original appointment code was blank, rather than if the original appointment code was W. Verizon indicated that it was still investigating the logic that NMP uses to calculate this field.<sup>589</sup> Liberty recommends that Verizon continue to research this issue and report to the Board its findings and any corrective action that it must take.

To derive the application interval, which it uses in the PR-1 metric, Verizon calculates the difference in business days between the submission date of the LSR or ASR (or in some cases the application date on the service order) and the original due date.<sup>590</sup> The original due date is the date that Verizon gave the CLEC when confirming the order.<sup>591</sup> The application date is the date/time recorded on the service order in MISOS, which in nearly all cases is the same as the submission date/time when Verizon received the valid LSR or ASR.<sup>592</sup>

When calculating the application interval, Verizon usually uses the submission date. This process ensures that Verizon accurately calculates the interval in cases where the NMC representative made a typographical mistake in the application date entered on the service order. Therefore, when the application date is less than or equal to the submission date, Verizon uses the submission date to calculate the interval. NMP also checks if the application date/time is later than the submission date/time. In certain cases, Verizon discovers a problem with an order after it has already created the service order, such as an incorrect channel facility assignment. In such cases, Verizon cancels the original service order, and Verizon creates a new one after the CLEC resubmits a corrected order. On the correct service order, Verizon will use the application date of the new service order to calculate the interval (rather than the submission of the original incorrect LSR).

To derive the completion interval, which it uses in the PR-2 and PR-3 metrics, Verizon calculates the difference in business days between the submission date of the order (or in some cases the application date on the service order) and the work completion date.<sup>593</sup> The work completion date/time represents the point that Verizon completed provisioning as recorded in WFA.<sup>594</sup> NMP performs the same series of checks on the submission and application date for the completion interval as it does for the application interval.

Under the Guidelines for PR-1, PR-2, and PR-3, Verizon should consider all orders that it receives after the cut-off time in the Product Interval Guide as if it had received them the next day. The cut-off time for a CLEC order should be the same as that for a retail order. Verizon indicated that its representatives follow the cut-off times in the Product Interval Guide when assigning due dates for retail orders.<sup>595</sup> Liberty examined how Verizon calculated the application

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<sup>589</sup> Response to Data Request #924.

<sup>590</sup> Response to Data Request #863 and clarification phone call on May 23, 2003. Verizon indicated in response to Data Request #901 that it used the WFA provisioning due date for ASR-related service orders and, if this field were blank, it used the due date on the order.

<sup>591</sup> Interview #35, April 11, 2003.

<sup>592</sup> Response to Data Request #838.

<sup>593</sup> Response to Data Request #881 and clarification phone call on May 23, 2003.

<sup>594</sup> Interview #35, April 11, 2003, and response to Data Request #837.

<sup>595</sup> Interview #61, May 29, 2003.



and completion intervals for a sample of both retail and wholesale orders, and found that Verizon calculates them properly.

For LSR-related service orders, Verizon calculates a dispatch indicator in NMP. NMP sets the indicator to Y if the number of times that a technician was dispatched, as recorded in WFA/DO, is greater than zero. Alternatively, NMP checks the “order completed by” field in WFA, which the field technician populates.<sup>596</sup> Liberty found that this method would not be appropriate for cancelled LSR-related orders, since the dispatch indicator would default to a value of N. For ASR-related service orders, Verizon assigns a dispatch indicator when its NMC personnel create the service order.<sup>597</sup>

### Common Exclusions

Liberty examined how Verizon applied the exclusions in the Guidelines. Many of those exclusions are common to most of the PR metrics. Liberty discusses exclusions specific to individual metrics in later report sections under each metric. Liberty discusses the exclusions for PR-6 and PR-9 in those sections of the report because Verizon does not calculate these measures entirely within the PR NMP domain.<sup>598</sup>

The Guidelines require that Verizon exclude test orders from all PR metrics except PR-6. Verizon excludes test orders by a logic step in its algorithms that screens out records that have a test account flag, which NMP determines for both ASR and LSR-related service orders on the basis of a look-up table of test CLEC IDs.<sup>599</sup> The Guidelines also require that Verizon exclude data for its affiliates from CLEC reported results. Verizon calculates each sub-metric result by individual CLEC and Verizon affiliate ID and aggregates them accordingly in the NMP reporting system. Thus Verizon correctly excludes test CLEC and Verizon affiliate orders from the measures.

The Guidelines require that Verizon exclude disconnect orders from PR-1 through PR-5 and PR-7 through PR-8, except for the specific sub-metrics that deal exclusively with disconnect orders. Verizon excludes disconnects from the metrics by a logic step in its algorithms that selects only N, T, and C orders (thus excluding D and F disconnect orders). In many cases, Verizon applies another logic step that screens out change orders that have a disconnect flag. NMP sets the disconnect flag to Y for C orders that have outward activity. Verizon issues a service order for a disconnection on a C order when it must disconnect one or more auxiliary lines or circuits while the main billing account remains in service.<sup>600</sup>

For all PR measures except PR-6, the Guidelines require that Verizon exclude additional segments on orders. Verizon indicated that it does not have segmented orders in New Jersey.<sup>601</sup>

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<sup>596</sup> Interview #62 (written response), May 31, 2003.

<sup>597</sup> The dispatch indicator for ASR-related service orders is therefore a reliable field for categorizing cancelled orders as dispatched or non-dispatched for PR-1.

<sup>598</sup> Verizon also uses data from the maintenance and repair domain for the calculation of the PR-6 metrics.

<sup>599</sup> Responses to Data Requests #856 and #904.

<sup>600</sup> Response to Data Request #900.

<sup>601</sup> Interview #19, February 21, 2003.

Liberty therefore recommends that Verizon request a chance to the Guidelines to remove this non-applicable exclusion.

For the PR-1 through PR-8 (except PR-6) metrics, the Guidelines require that Verizon exclude administrative orders from the measures. The glossary to the Guidelines defines administrative orders as those orders completed by Verizon for administrative purposes and not at the request of a CLEC or end user; such orders include administrative orders for Verizon official lines. The Guidelines also require that Verizon exclude suspend for non-payment and associated restore orders (“snip-and-restore”) from PR-1 through PR-5 and PR-8 metrics. Verizon assigns an exclusion indicator field value of Y within NMP for LSR-related service orders that it designated as administrative or snip-and-restore orders in MISOS.<sup>602</sup> Liberty found that Verizon excluded roughly 20 percent of its retail service orders as non-payment snip-and-restore orders in the February data month. Verizon also uses the exclusion indicator field to mark Verizon-initiated administrative orders, since there is no CLEC order associated with them.<sup>603</sup> Verizon then excludes orders with an exclusion indicator of Y by a logic step in its metric algorithms. Verizon indicated that it does not have administrative and snip-and-restore service orders related to ASRs.<sup>604</sup>

Verizon performs additional steps for LSR-related service orders to identify other administrative orders and disconnect orders not otherwise identified by the disconnect flag and exclusion indicator fields. For the PR-1 through PR-8 metrics, Verizon calculates a global exclusion indicator within NMP, which is set to Y for any of the following orders:<sup>605</sup>

- Administrative orders (typically billing record changes and Verizon initiated orders)
- Disconnect orders issued as a companion to migration orders
- Duplicate orders on line sharing orders that are related only to billing
- Records with blank service order numbers
- PARTS orders
- Corporate services (Verizon requests for company telecommunications services)
- Directory listing, advertising, and special billing orders.

Verizon then excludes orders with a global exclusion indicator of Y by a logic step in its metric algorithms. Verizon indicated that the types of LSR-related orders that it excludes using the global exclusion indicator do not occur for ASRs.<sup>606</sup>

As part of the global exclusion, Verizon eliminates orders from the measures that are not specified in the Guidelines, *i.e.*, billing-only orders related to line sharing orders, invalid orders (those with no service order number), PARTS orders, corporate orders, and directory listing, advertising, and special billing orders. For line sharing requests, Verizon creates two service orders, one for provisioning and the other for billing purposes. Verizon includes only the

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<sup>602</sup> Response to Data Request #869. Verizon checks for a value of Y in the Admin indicator field or Y in the snip-and-restore indicator field on the service order as recorded in the SOP.

<sup>603</sup> Response to Data Request #869. Verizon checks for orders that have “ZZ” as the first two characters in the LSR number field.

<sup>604</sup> Response to Data Request #927.

<sup>605</sup> Response to Data Request #588.

<sup>606</sup> Response to Data Request #928.

provisioning order. Verizon considers PARTS (Packet at Remove Terminal Service) orders to be an interstate access service not covered by the Guidelines, and excludes all PARTS orders from PR metrics. These additional exclusions are reasonable, but the Guidelines do not specify them. Liberty therefore recommends that Verizon seek clarification to the Guidelines.

For resale migrations, Verizon creates a disconnect order as a companion to the migration order establishing the reseller on the account. Verizon excludes this migration disconnect order through the global exclusion indicator. However, certain PR sub-metrics report only on disconnections (PR-1-12 and PR-2-18). Since Verizon excludes these migration disconnect orders through a global exclusion, it incorrectly omits them from the PR-1-12 and PR-2-18 results. Excluding such disconnects is appropriate for other sub-metrics, but the method by which Verizon implemented this exclusion causes errors in PR-1-12 and PR-2-18. Liberty recommends that Verizon change its process to include these disconnect orders in the calculation of the PR-1-12 and PR-2-18 metrics.

The Guidelines require that Verizon exclude orders with negative or invalid (greater than 200 business days) appointment or completion intervals from the PR-1, PR-2, and PR-3 metrics. Verizon calculates the appointment and completion intervals within NMP. If NMP calculates a negative interval for LSR-related service orders, it sets the value to a blank, and Verizon’s metric algorithm excludes these orders from the metrics.<sup>607</sup> Verizon checks for valid completion and appointment intervals in its metrics algorithms by selecting only those orders with intervals between 0 and 200. Thus Verizon is correctly applying these two exclusions for LSR-related service orders. For ASR-related service orders, Verizon excludes orders with null intervals and intervals greater than 200 days.<sup>608</sup> Verizon does not, however, exclude those with negative intervals, and is thus not correctly applying this exclusion for products ordered through ASRs.<sup>609</sup> Liberty recommends that Verizon correct its metric algorithms that use ASR-related service order data to implement this exclusion.

For the PR-1, PR-2, and PR-3 metrics, the Guidelines require that Verizon exclude service orders for 2-wire digital service and 2-wire xDSL service if the orders require manual loop qualification. The Guidelines define such orders as those that have an “R” (for required) in the loop qualification field on the LSR. Verizon calculates a qualification indicator field in NMP. NMP sets the indicator to Y if the LSR had a R in the loop qualification field, and Verizon then excludes orders with a Y in the indicator from the 2-wire product results for these sub-metrics.<sup>610</sup> Verizon does not have the equivalent designation for retail orders, however, and therefore excludes no retail orders for this reason.

As discussed in the chapter on the ordering metrics, Verizon’s ordering process automatically sends LSRs with an R in the loop qualification field through an automated loop qualification process. If the order passes through the automated process successfully, it will flow through to

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<sup>607</sup> Response to Data Request #715.

<sup>608</sup> Response to Data Request #901.

<sup>609</sup> In response to Data Request #929, Verizon indicated that it checked for both negative and invalid (over 200 day) intervals. However, Liberty found that Verizon’s algorithms checked for appointment or completion intervals greater than 200 days, but not for negative values.

<sup>610</sup> Responses to Data Requests #871 and #872.

the SOP. If the order does not pass through the automated process successfully, Verizon’s system routes the order to a representative in the NMC, who sends the order to Verizon engineering for loop qualification.<sup>611</sup> Verizon is therefore excluding both those orders that require manual qualification and those that been qualified during the automated process. Liberty recommends that Verizon seek a clarification to the Guidelines on this issue.

Verizon determines a governing MAC code, referred to by Verizon as the “CISR MAC,” that it uses to apply certain exclusions in the Guidelines. Verizon derives the CISR MAC in NMP to identify whether the delay in completing the order on time was due to end-user or Verizon reasons.<sup>612</sup> A service order may have more than one MAC code, since CLECs can supplement the order to change due dates, and Verizon may reschedule due dates if one party or the other misses the appointment. If all (or the only) MAC codes on an order are due to the customer, then NMP will set the CISR MAC as the first customer MAC code, and if all (or the only) MAC codes are due to Verizon, then NMP sets the CISR MAC as the first Verizon MAC code.<sup>613</sup> In almost all cases, if a service order has a combination of codes, then NMP sets the CISR MAC as the first Verizon-caused miss.<sup>614</sup>

Although not specified in the Guidelines, Verizon excludes from its retail results for the PR metrics orders from the federal government.<sup>615</sup> Verizon considers such orders administrative in nature. This interpretation is reasonable, but Verizon should seek a clarification to the Guidelines to make this explicit.<sup>616</sup>

Verizon also excludes VADI service orders from both CLEC and Verizon retail results for PR-1 through PR-5 and PR-8. Verizon calculates a VADI indicator in NMP using a look-up table of VADI CLEC IDs. This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion. Verizon also uses additional logic steps to exclude VADI service orders from wholesale results based upon certain codes in the PON field. Verizon explained that it used this PON convention for particular types of line sharing orders.<sup>617</sup> Verizon applies this exclusion to UNE and resale 2-wire xDSL products. Verizon should clearly communicate this PON convention to CLECs, so that they do not inadvertently use the same numbering scheme.

Although not specified in the Guidelines, Verizon excludes service orders associated with special projects from certain PR metrics for both ASR and LSR related service orders. According to Verizon, at certain times, a CLEC requests that Verizon handle certain orders in a special manner outside of the normal process, such as when a CLEC submits a large number of orders that it

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<sup>611</sup> Response to Data Request #611.

<sup>612</sup> Interview #35, April 11, 2003.

<sup>613</sup> Response to Data Request #934.

<sup>614</sup> Interview #35, April 11, 2003 and response to Data Request #935.

<sup>615</sup> Response to Data Request #867. Verizon excludes orders with a sales code of 915T and 916T that also have an S preceding the data in the related order field.

<sup>616</sup> Verizon applies this exclusion in many of its wholesale metric algorithms, but the code is unnecessary for wholesale orders.

<sup>617</sup> Response to Data Request #722. Verizon excludes orders with “YK” as the third and fourth characters of the PON.

wants Verizon to track separately.<sup>618</sup> Verizon maintains a look-up table within NMP, which lists CLEC, PON, and product types it is to exclude; Verizon updates the table via the change control process.<sup>619</sup> Verizon excludes service orders related to special projects by a logic step in its wholesale metric algorithms that screens out records that have a project indicator flag, which NMP determines on the basis of the look-up table. This exclusion is reasonable, but Verizon should seek a clarification to the Guidelines to reflect this exclusion.

### **Verizon Metric Conventions**

During its review, Liberty identified some common practices that affect many of the PR measures. Verizon includes N, T, and C orders in the PR metrics, and typically excludes R, D, and F order types from the PR metrics with a few exceptions. Verizon reports D and F type orders in the PR-1-12 and PR-2-18 metrics. Verizon includes R orders in the metrics only when they are for resale “as is” migrations.<sup>620</sup> Verizon also excludes all dark fiber orders from the PR metrics.<sup>621</sup> For products ordered via ASRs, Verizon includes only N and C orders (and D orders for PR-1-12 and PR-2-18).

Verizon provided Liberty with its Metric Business Rules, the algorithms that it uses to calculate the metrics. The version that Liberty received calculated statewide results for all measures. Verizon indicated that to calculate the results for each of the five geographic regions in New Jersey, it used algorithms that were essentially the same as those provided to Liberty, except that they contained steps to group results by geographic district.<sup>622</sup> Liberty did not review nor examine these algorithms.

Verizon always uses the original due date as the measuring point for appointment and completion intervals for PR-1 through PR-3. If the CLEC supplements the order, Verizon counts the first interval towards the metrics. For example, if the CLEC calls before the due date to reschedule (and supplements the original order), Verizon still measures its performance for the service order from the original due date.

### *Verizon retail parity for UNE 2-wire xDSL loop products*

For PR metrics with a retail parity standard for UNE 2-wire xDSL loops and line sharing products, Verizon compares its CLEC performance to that it provides through its retail organization. As of July 2002, Verizon established a separate division for the provisioning of 2-wire xDSL services. Verizon’s Data Services Network Operations (DSNO), formerly known as VADI, handles retail xDSL services in New Jersey. Internet Service Providers (ISPs) now place xDSL service orders with DSNO, who then place orders for UNE 2-wire xDSL line sharing with

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<sup>618</sup> Response to Data Request #337. The CLEC is required to submit the request in writing and agree that the PONs requiring special treatment can be omitted from the metrics.

<sup>619</sup> Response to Data Request #864.

<sup>620</sup> Response to Data Request #583. Verizon indicated during Interview #61 that only “as is” resale migrations are R service orders; “as specified” migrations are C service orders.

<sup>621</sup> Response to Data Request #583.

<sup>622</sup> Response to Data Request #883.

Verizon’s wholesale group through the same interface available to CLECs.<sup>623</sup> For 2-wire xDSL line sharing metrics where the performance standard is parity with retail, Verizon reports DSNO’s performance for provisioning 2-wire xDSL service to its customers (the ISPs) as the retail comparison. This treatment is different from how Verizon calculates other retail parity results, for which Verizon uses the comparable retail service order for a like product. For the 2-wire xDSL parity standard, Verizon also includes the time that it takes DSNO to complete its own internal order to the ISP. The DSNO organization calculates the retail parity result for 2-wire xDSL and provides these performance results to NMP.<sup>624</sup> Liberty determined that using the DSNO retail results as the analog for wholesale parity is an apples-to-oranges comparison and does not represent an accurate benchmark for the wholesale results. Because of the additional time that the DSNO organization adds to its results for the completion of the end-to-end service with the ISP, the wholesale results will tend to always appear to be much better than retail, yet this may not be a true reflection of the service quality the CLECs are getting from Verizon.

In its January 2003 petition to the Board, Verizon stated that the current retail comparison was inappropriate, because it failed to depict a “like-for-like” comparison with wholesale.<sup>625</sup> Verizon indicated that the wholesale interval for providing 2-wire xDSL line sharing to CLECs is 3 business days, while DSNO’s interval for providing service to ISPs is 5 business days because it includes the 3 business day interval for wholesale provisioning of UNE 2-wire xDSL line sharing to DSNO plus the time to establish the facility to the ISP.

## **7. Findings and Recommendations**

The following findings relate to the Provisioning domain in general. Liberty includes additional findings in the specific PR metric discussions that follow.

### **Verizon’s documentation for the PR measures is not formalized, accurate, and complete.**

Verizon prepared much of the documentation that Liberty received for its use in this audit. Liberty recommends that Verizon clearly document its process for obtaining source data and calculating the provisioning metrics. Liberty never received complete PR business rules that Verizon could attest as being accurate. Liberty recommends that Verizon publish clear and accurate Metric Business Rules that could be used by the Board or CLECs to replicate Verizon’s results if they so choose.

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<sup>623</sup> Response to Data Request #691 (clarification).

<sup>624</sup> Response to Data Request #691 (clarification).

<sup>625</sup> Petition of Verizon New Jersey Inc. to Modify Certain Carrier to Carrier Performance Measurements and Standards, January 13, 2003, Docket No. TX95120631 and TX98010010.

**Verizon makes general exclusions to the PR metrics that are reasonable but not reflected in the Guidelines.**

Verizon makes several exclusions to the PR metrics that, while appropriate, the Guidelines do not reflect. Verizon should request a change to the Guidelines to list explicitly these exclusions, including:

- Orders with negotiated due dates
- Order types associated with the global exclusion including billing only orders associated with line share activity, PARTS orders, corporate orders, invalid orders with no service order numbers, and special billing orders
- Orders that require loop qualification, but were qualified automatically by Verizon’s system
- Federal government orders
- VADI service orders
- Special projects.

Verizon should also seek a clarification to remove the “additional segments on orders” exclusion in the Guidelines, as it does not apply to the New Jersey order process.

**Verizon does not implement the exclusion of negative intervals for PR-1 through PR-3 correctly for certain products.**

Verizon does not exclude ASR-related service orders with negative intervals from the PR-1 through PR-3 metrics. Verizon should change its metric algorithms to implement this exclusion.

**Verizon has a significant number of service orders with a missing original appointment code for unexplained reasons, which may cause Verizon to treat them incorrectly in the calculation of PR metrics.**

A significant number of service orders do not have an original appointment code, which means that Verizon’s metric algorithms may not treat them correctly. Verizon should continue to investigate the root cause of this issue and report back to the Board with its findings and any corrective action that is necessary.

**Verizon incorrectly calculates the data field that it uses in PR-1 and PR-2 to exclude ASR-related service orders where the customer did not select the standard offered interval.**

Liberty found that NMP incorrectly calculates the W-coded indicator, which Verizon uses to exclude certain ASR-related service orders. As a result, Verizon improperly applies the exclusion for service orders where the customer did not select the standard offered interval for PR-1 and PR-2. Verizon indicated that it was still investigating the logic that NMP uses to calculate this field. Liberty recommends that Verizon continue to research this issue and report to the Board its findings and any corrective action that it must take.

## **B. PR-1, Average Interval Offered**

### **1. Background**

The metrics within PR-1 report the average number of business days between order application date and committed due date (appointment date). The Guidelines define the application date as the date that Verizon receives a valid service request. The ten PR-1 sub-metrics focus on distinct categories of service orders, *i.e.*, dispatched, non-dispatched, and total, and vary based on number of lines in the order or product. The Guidelines require Verizon to report results by distinct wholesale and retail product groups, dependent upon the sub-metric.

The exclusions that apply to PR-1 are:

- Verizon test orders
- Orders where the customer requests a due date that is greater than or less than the standard available appointment interval
- Verizon administrative orders
- Orders with invalid intervals (negative or over 200 business days)
- Additional segments on orders
- Suspend for non-payment and associated restore orders
- Orders completed late due to any end user or CLEC caused delay
- Verizon affiliate data from CLEC results
- Disconnect orders, except for PR-1-12
- For 2-wire digital services and 2-wire xDSL services, orders requiring manual loop qualification.

Verizon reports results by individual and aggregate CLECs, Verizon retail, and individual and aggregate Verizon affiliates. For Specials, IOF, EEL, and Trunks product groups, Verizon reports on a statewide basis. For all other products,<sup>626</sup> Verizon reports the results by each of the five geographic regions of New Jersey.<sup>627</sup> For all of the PR-1 measures except for PR-1-01 and PR-1-02, UNE 2-Wire xDSL loop products, the standard is parity with Verizon retail.<sup>628</sup> For the two exceptions there is no standard. There are five sub-metric results within PR-1 that are included in Verizon’s IP. For the period November 2001 through January 2003, Verizon did not make any incentive payments related to PR-1.<sup>629</sup>

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<sup>626</sup> These other products are POTS, Complex, 2-wire Digital Services, and 2-wire xDSL Services.

<sup>627</sup> The five geographic divisions for the state of New Jersey are: Southern, Eastern Shore, Raritan, Suburban and Hudson-Bergen. Response to Data Request #13.

<sup>628</sup> For provisioning measures, except as otherwise expressly stated in the standards for a metric, where the standard for UNE 2-wire xDSL Loops or Line Sharing is parity with Verizon retail, Verizon’s performance for CLECs will be compared to the better of Verizon’s performance for Retail 2-wire XDSL Services or Verizon’s data affiliate.

<sup>629</sup> Incentive payment reports provided to Liberty by the Board’s Staff.



## 2. Analysis and Evaluation

The sub-metrics within PR-1 report Verizon’s average appointment or “offered” interval for dispatched and non-dispatched service orders. The Guidelines do not specify the status of the service orders (*i.e.*, completed, cancelled, or pending) that Verizon should report in PR-1. During an interview with Liberty, Verizon indicated that it reported both completed and cancelled orders in the PR-1 results.<sup>630</sup> Then, in a later interview, Verizon indicated that it includes only completed orders.<sup>631</sup> To the extent that Verizon’s Metric Business Rules reflect what its computer algorithms actual do (and this is by far an uncertainty),<sup>632</sup> Verizon only includes completed LSR-related service orders, and includes both completed and cancelled ASR-related service orders.<sup>633</sup> At a minimum, Verizon is inconsistent in what orders it includes in the PR-1 measure.<sup>634</sup>

Including both completed and cancelled orders in PR-1 is the most reasonable approach because it provides a more accurate representation of the average appointment interval offered to CLECs and to Verizon retail customers. Verizon should report each service order once, thus omitting pending orders is appropriate since it will report these orders when completed or cancelled. The LSR Service Order Fact table for February 2003 showed that Verizon cancelled about 2 percent of retail orders, 3 percent of UNE orders, and 2 percent of resale orders. Liberty therefore estimates that Verizon is under-reporting PR-1 results by approximately 2 to 3 percent. Liberty recommends that Verizon should change its methods to include both completed and cancelled orders in PR-1 and should request a change to the Guidelines to make this point clear.

Verizon includes N, T, and C service orders (and N and C service orders for product ordered via ASRs) in all PR-1 metrics (except PR-1-12). Verizon also includes certain R (record) service orders associated with “as is” resale migrations in its resale POTS, 2-wire digital, 2-wire xDSL, and specials products groups.<sup>635</sup> Such migrations are included only for results that measure non-dispatched orders.<sup>636</sup>

<sup>630</sup> Interview #35, April 11, 2003.

<sup>631</sup> Interview #62 (written response), May 31, 2003.

<sup>632</sup> Liberty received updates to Verizon’s Metric Business Rule algorithms as late as May 28, 2003.

<sup>633</sup> Verizon uses the report period field in the LSR Service Order Fact table to select LSR-related service orders. NMP calculates the report period as month in which the CRIS completion date for the order falls, to select orders included in results. Cancelled orders have a null report period value (since they have no CRIS completion date) and thus Verizon exclude them.

<sup>634</sup> Verizon includes both cancelled and completed orders for CLEC trunks and UNE IOF and EEL products, and for those UNE specials ordered via ASRs. Verizon selects orders for these products if they have an order status date within the reporting month.

<sup>635</sup> “As specified” resale migrations are provisioned via C orders, and are thus otherwise included in the metric results.

<sup>636</sup> Interview #62 (written response), May 31, 2003. Verizon indicated that such migrations are only non-dispatched. However, Verizon included the logic steps in many of the algorithms that it uses to calculate dispatched orders; Liberty concluded that this was extraneous code.

Verizon reports “one-day-or-less” 2-wire digital and 2-wire xDSL features-only loop orders in its retail and resale UNE POTS residential and business product groups.<sup>637</sup> Verizon calculates a features indicator within NMP, which sets the indicator to Y if the 2-wire digital or 2-wire xDSL order is a change order and has an appointment interval of one day or less.<sup>638</sup> Change orders with features with longer intervals are included in their respective 2-wire product group results. Verizon indicate that it introduced this step to include 2-wire orders that were “obvious POTS features orders” in the POTS product group.<sup>639</sup> This approach for including one-day-or-less features-only 2-wire orders in POTS results is reasonable; however Verizon should seek a clarification to the Guidelines to reflect this convention.

For the UNE 2-wire xDSL line sharing product group, Verizon includes Verizon retail line sharing orders and UNE line splitting orders. Since the addition of line sharing for a CLEC UNE involves a change to an existing retail account, Verizon treats these orders as retail orders although they count toward the wholesale metrics. However, Verizon also includes in this product group UNE line splitting orders. Line sharing and line splitting are two different products.<sup>640</sup> Liberty recommends that Verizon report only line sharing in the product group, or seek a clarification to the Guidelines to expand the product group to include both.

Under the Guidelines, specials orders include all designed circuits, 4-wire circuits (including primary rate ISDN and 4-wire xDSL services), and all DS0, DS1, and DS3 circuits. Verizon reports EEO and IOF products separately.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon excludes test orders, administrative orders, orders with invalid intervals, and suspend for non-payment and associated restore orders. Verizon excludes affiliate data from CLEC results, and excludes disconnect orders except for PR-1-12. For 2-wire service, Verizon excludes orders requiring manual loop qualification. For a discussion of these exclusions, refer to the introductory section of this chapter.

The Guidelines also require that Verizon exclude orders where the customer requested a due date that is greater than or less than the standard available appointment interval. Verizon accomplishes this exclusion in different ways, depending upon the product. For many of the product groups, Verizon selects orders that have a “W” original appointment code, which indicates that the customer accepted the offered interval for the product.<sup>641</sup> This method is consistent with the Guidelines, because it excludes orders where the customer requested an

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<sup>637</sup> In its written response to IR #62, Verizon indicated that since 2-wire digital services are capable of providing POTS service and it is required to report POTS separately, it identified the POTS-like features and includes them in the POTS product group.

<sup>638</sup> The standard interval for provisioning 2-wire digital service is greater than one day, therefore this logic selects features-only orders. Features are also included on N and T orders, but the primary action on those orders is either the establishment of new service or the transfer of existing service.

<sup>639</sup> Interview #62, June 2, 2003.

<sup>640</sup> For line sharing, the customer’s line is shared between Verizon, who provides the voice service, and a CLEC who provides the data service. For line splitting, the voice and data service are either both provided by a single CLEC using UNE-P to provide the voice service, or by two separate CLECs. Verizon has no relationship with the end user in a line splitting service arrangement.

<sup>641</sup> These products are retail and resale POTS (residential and business); UNE POTS platform; UNE POTS other; resale and retail 2-wire digital; and resale, retail, and UNE specials.

earlier or later due date. For certain other products, Verizon calculates a separate field to check whether the appointment interval is the standard and, if it is, includes the order in the results.

For UNE POTS hot cut orders, Verizon calculates a hot cut indicator within NMP. NMP assigns the field a value of Y if the appointment interval is the same as the standard interval, based on a look-up table containing standard intervals and product types.<sup>642</sup> If the customer had requested something longer or shorter than the standard interval (five days), NMP sets the field to N, and Verizon excludes the order from the results in its metric algorithm.

For UNE 2-wire digital, 2-wire xDSL loops, and 2-wire xDSL line sharing, Verizon calculates an inclusion indicator field within NMP. Verizon sets the value of the indicator to Y if the appointment interval is the same as the standard interval, based on a look-up table containing standard intervals and product types.<sup>643</sup> The table indicates that the standard interval is six days for UNE 2-wire digital and UNE 2-wire xDSL loops, and 3 days for UNE 2-wire xDSL line sharing.<sup>644</sup> Verizon’s metric algorithm includes only those orders with an indicator value of Y in results. Liberty concluded that Verizon correctly applies the exclusion for these products.

Verizon’s algorithms include resale POTS “as is” resale migrations in results if the appointment interval is one day or less, and include those for resale 2-wire digital, 2-wire xDSL, and specials products if the appointment interval is two days or less. Verizon’s Product Interval Guide specifies that the standard interval for “as is” resale migrations is the same business day. Verizon’s approach does not distinguish between orders where the customer selected the standard interval and those where the customer requested a later due date than offered. Liberty has concluded that Verizon has not properly applied the exclusion for orders where the customer request an earlier or later due date for these products. Liberty recommends that Verizon select only those orders where the customer selected the offered interval, or seek a clarification to the Guidelines to reflect its current treatment for these products.

Under the Guidelines, the performance standard for all products (except UNE 2-wire xDSL loops) is parity with Verizon retail. When reporting its PR-1 results, Verizon uses retail POTS business as the parity comparison for the UNE POTS hot cut loop, POTS platform, and POTS other product group results. Verizon indicated that the Guidelines do not specify which retail POTS product to use. According to Verizon, when it initially developed its metrics programming, the majority of its orders for UNE loops and UNE platform were business.<sup>645</sup> This convention is not appropriate, since business POTS intervals would tend to be longer than residential ones. Verizon should either use a weighted average of its retail POTS business and residential results or provide a justification for its current practice. In either case, Verizon should request a clarification to the Guidelines to reflect its practice.

For each of the PR-1 measures, Verizon uses a separate algorithm to calculate the result for each product group, and uses a separate algorithm for retail and wholesale results.

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<sup>642</sup> Response to Data Request #873.

<sup>643</sup> Response to Data Request #875.

<sup>644</sup> Responses to Data Requests #875, #876, and #877.

<sup>645</sup> Response to Data Request #885.

### PR-1-01 – Average Interval Offered – Total No Dispatch

Verizon reports PR-1-01 results for the following products:

Retail and Resale	UNE
POTS – Residence	POTS – Hot Cut Loop <sup>646</sup>
POTS – Business	POTS – Platform
	POTS – Other (UNE Switch & INP combined)
2-wire Digital Services <sup>647</sup>	2-wire Digital Services
2-wire xDSL Services	2-wire xDSL Loops
	2-wire xDSL Line Sharing
Specials	Specials

Verizon includes only non-dispatched orders in PR-1-01 results.

Liberty examined the algorithms that Verizon uses to calculate the PR-1-01 measures. The formula for the PR-1-01 metric set forth in the Guidelines is as follows:

- Numerator: The sum of the committed due date less the application date for orders without an outside dispatch by product group
- Denominator: The number of orders without an outside dispatch by product group.

To calculate the denominator for the measure, Verizon counts the number of non-dispatched completed service orders for the given product group. To calculate the numerator for PR-1-01, Verizon sums the appointment intervals for all service orders identified in the denominator.

Liberty recalculated the CLEC aggregate result for the UNE POTS platform product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>648</sup> For purposes of the replication, Liberty used the same algorithm as Verizon. For PR-1-01-3140, average interval offered, Liberty replicated Verizon’s denominator, as well as the overall result, 1.35 days.<sup>649</sup>

Liberty also recalculated the measure that Verizon uses as its retail comparison for the UNE POTS platform product group, which is POTS business (PR-1-01-2110). Liberty replicated Verizon’s denominator, as well as the overall result, 1.87 days.<sup>650</sup>

Verizon reported no results for its affiliates for the UNE POTS platform product, and Liberty confirmed that there was no relevant data for these affiliates.

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<sup>646</sup> Verizon indicated during Interview #61 that the majority of UNE hot cut loops orders do not require a dispatch. The only hot cut orders that require a dispatch are those that involve an existing service on an IDLC system.

<sup>647</sup> In its written response to IR #62, Verizon clarified that it reported ISDN in 2-wire digital service product.

<sup>648</sup> Response to Data Request #582.

<sup>649</sup> Verizon reported a denominator of 40,045, and Liberty’s result was identical.

<sup>650</sup> Verizon reported a denominator of 11,610, and Liberty’s result was identical.

Liberty found additional errors in some of Verizon’s PR-1-01 algorithms. Verizon’s algorithm for UNE Specials does not include a check for negative intervals, and thus Verizon does not accurately apply the exclusion for this product. Verizon’s algorithm for the CLEC resale POTS business product (PR-1-01-2110) includes both residential and business one-day-or-less “features-only” orders for 2-wire digital services, rather than only those for business.

### PR-1-02 – Average Interval Offered – Total Dispatch

Verizon reports PR-1-02 results for the following products:

Retail and Resale	UNE
2-wire Digital Services	2-wire Digital Services
2-wire xDSL Services	2-wire xDSL Loops
	2-wire xDSL Line Sharing
Specials	Specials

Verizon uses the same definitions for these product groups that it uses for PR-1-01 results, except that it selects dispatched orders rather than non-dispatched ones.

Liberty found the same error in Verizon’s PR-1-02 algorithm for UNE specials as it did for PR-1-01. Verizon’s algorithm does not include a check for negative intervals, and thus Verizon does not accurately apply the exclusion for this product.

Liberty examined the algorithms that Verizon uses to calculate the PR-1-02 measures. The formula for the PR-1-02 metric set forth in the Guidelines is as follows:

- Numerator: The sum of the committed due date less the application date for orders with an outside dispatch by product group
- Denominator: The number of orders with an outside dispatch by product group.

To calculate the denominator for the measure, Verizon counts the number of dispatched completed service orders for the given product group. To calculate the numerator for PR-1-02, Verizon sums the appointment intervals for all service orders identified in the denominator.

Liberty recalculated the CLEC aggregate result for the UNE 2-wire digital services product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>651</sup> For purposes of the replication, Liberty used the same algorithm as Verizon. For PR-1-02-3341, average interval offered, Liberty replicated Verizon’s denominator, as well as the overall result, 6.0 days.<sup>652</sup> Liberty also recalculated the Verizon retail parity result for this product group. Liberty replicated Verizon’s denominator, as well as the overall result, 9.03 days.<sup>653</sup>

Verizon reported no results for its affiliates for the UNE 2-wire digital product, and Liberty confirmed that there was no relevant data for these affiliates.

<sup>651</sup> Response to Data Request #582.

<sup>652</sup> Verizon reported a denominator of 49, and Liberty’s result was identical.

<sup>653</sup> Verizon reported a denominator of 386, and Liberty’s result was identical.

**PR-1-03 – Average Interval Offered – Dispatch (1-5 Lines), PR-1-04 – Average Interval Offered – Dispatch (6-9 Lines), and PR-1-05 – Average Interval Offered – Dispatch ( $\geq 10$  Lines)**

The PR-1-03, PR-1-04, and PR-1-05 sub-metrics are related, and report on dispatched POTS orders by varying order size (*i.e.*, number of lines). Verizon reports PR-1-03 results for retail and resale POTS business and POTS residential, and for UNE POTS loop and POTS platform products. For the PR-1-04 and PR-1-05 sub-metrics, Verizon reports results for retail and resale POTS total and for UNE POTS loop and POTS platform products.

Verizon uses essentially the same definitions for these product groups that it uses for PR-1-01, except that it selects dispatched orders rather than non-dispatched ones. Also, Verizon calculates a line counter field in NMP that it uses to select service orders by size in its metric algorithms. Verizon derives the line counter value by summing the number of inward lines and the number of “to” lines on the service order.<sup>654</sup> For resale and retail POTS total product groups for PR-1-04 and PR-1-05, Verizon uses the sum of the POTS residential and business products.

Verizon also includes 2-wire digital and 2-wire xDSL “one-day-or-less” features orders in its resale and retail POTS product group algorithms as it does for PR-1-01, although only if they involve a dispatch and have a positive line count. Verizon clarified that the code was unnecessary, since such features-only 2-wire orders do not require a dispatch.<sup>655</sup>

Verizon reports a UNE POTS loop product result for these three sub-metrics. However, Verizon excludes hot cut orders from PR-1-03 through PR-1-05, and has therefore improperly defined the product group. The UNE POTS hot cut loop product group for PR-1-01 includes only non-dispatched orders, which are all hot cuts except those involving loops on IDLC systems. By excluding all hot cut loop orders from PR-1-03 through PR-1-05 dispatched UNE POTS loops, Verizon never reports IDLC orders in PR-1. Liberty recommends that Verizon include dispatched hot cut loops in the UNE POTS loop product results for PR-1-03 through PR-1-05.

For PR-1-03, Verizon reports the POTS business retail result as the parity comparison for the wholesale UNE POTS loop and POTS platform product results. For PR-1-04 and PR-1-05, Verizon uses retail POTS total as the parity comparison.

Liberty examined the algorithms that Verizon uses to calculate the PR-1-03, PR-1-04, and PR-1-05 measures. The formula for the sub-metrics set forth in the Guidelines is as follows:

- Numerator: The sum of the committed due date less the application date for POTS orders with an outside dispatch by product group for orders with 1-5 lines/6-9 lines/10 or more lines
- Denominator: The number of POTS orders with an outside dispatch by product group for orders with 1-5 lines/6-9 lines/10 or more lines.

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<sup>654</sup> Response to Data Request #584.

<sup>655</sup> IR #62 (written response), May 31, 2003.

To calculate the denominator for the measures, Verizon counts the number of dispatched completed service orders for the given product group (by appropriate number of lines). To calculate the numerators for PR-1-03, PR-1-04, and PR-1-05, Verizon sums the appointment intervals for all service orders identified in the denominator.

Liberty recalculated the CLEC aggregate result for the resale POTS residential (1-5 lines) product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>656</sup> For purposes of the replication, Liberty used the same algorithm as Verizon. For PR-1-03-2120, average interval offered, Liberty replicated Verizon’s denominator, as well as the overall result, 3.11 days.<sup>657</sup> Liberty also recalculated the Verizon retail parity result for this product group, which is POTS residential. Liberty replicated Verizon’s denominator, as well as the overall result, 3.73 days.<sup>658</sup>

Verizon reported no results for its affiliates for the resale POTS residential product group, and Liberty confirmed that there was no relevant data for these affiliates.

Liberty recalculated the CLEC aggregate result for the UNE POTS loop (6-9 lines) product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>659</sup> For purposes of the replication, Liberty used the same algorithm as Verizon, even though it is otherwise incorrect. For PR-1-04-3112, average interval offered, Liberty replicated Verizon’s denominator, as well as the overall result, 6.0 days.<sup>660</sup> Liberty also recalculated the Verizon retail parity result for this product group, which is retail POTS total (6-9 lines). Liberty replicated Verizon’s denominator, as well as the overall result, 6.50 days.<sup>661</sup>

Verizon reported no results for its affiliates for the UNE POTS product group, and Liberty confirmed that there was no relevant data for these affiliates.

**PR-1-06 – Average Interval Offered – DS0, PR-1-07 – Average Interval Offered – DS1, and PR-1-08 – Average Interval Offered – DS3**

Verizon reports average interval offered results for retail, resale, and UNE DS0, DS1, and DS3 specials in three separate sub-metrics in PR-1. Verizon reports both dispatched and non-dispatched orders in these measures.

Liberty did not conduct a detailed analysis of these three sub-metrics, since they are not included in Verizon’s IP and the volume of CLEC orders of these product types is very small. During February 2003, there were only 3 resale and 25 UNE DS0, DS1, and DS3 specials service orders reported by Verizon.

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<sup>656</sup> Response to Data Request #582.

<sup>657</sup> Verizon reported a denominator of 1,642, and Liberty’s result was identical.

<sup>658</sup> Verizon reported a denominator of 11,083, and Liberty’s result was identical.

<sup>659</sup> Response to Data Request #582.

<sup>660</sup> Verizon reported a denominator of 3, and Liberty’s result was identical.

<sup>661</sup> Verizon reported a denominator of 197, and Liberty’s result was identical.

Liberty did, however, examine the algorithms that Verizon uses to calculate these results. CLECs order UNE DS0, DS1, and DS3 facilities via ASRs, and in some cases order UNE DS0 facilities via LSRs. Verizon’s algorithm for the UNE DS0 product group includes only LSR-related service orders. Verizon clarified that CLECs order only EEL DS0 products using ASRs, and Verizon reports EELs separately under PR-1-09.<sup>662</sup> Liberty found that Verizon did not check for negative intervals for specials ordered via ASRs, *i.e.*, UNE DS1 and DS3 specials, and thus does not accurately implement the Guidelines exclusions for these products.<sup>663</sup>

### **PR-1-09 – Average Interval Offered – Total**

Under the Guidelines, the average interval offered for trunks is the average number of business days between the date that Verizon receives a valid ASR (application date) and the due date it committed to on the FOC (appointment date).

Verizon reports PR-1-09 results for the following products:

<b>UNE</b>	<b>Retail</b>	<b>CLEC to VZ Trunks</b>
IOF	IXC FGD Trunks ( $\leq 192$ Forecasted Trunks)	Interconnection Trunks ( $\leq 192$ Forecasted Trunks)
EEL	IXC FGD Trunks ( $> 192$ Forecasted Trunks and Unforecasted Trunks)	Interconnection Trunks ( $> 192$ Forecasted Trunks and Unforecasted Trunks)

Verizon indicated that it includes two-way trunks in the PR-1-09 trunk measures.<sup>664</sup>

The formula for the PR-1-09 metric set forth in the Guidelines is as follows:

- Numerator: The sum of the committed due date less the application date for product group orders
- Denominator: The number of orders by product group.

Verizon indicated that it found significant errors in its PR-1-09 algorithms. Verizon does not exclude trunk orders with invalid or negative appointment intervals, which is inconsistent with the Guidelines. Verizon also includes trunk orders with no due date.<sup>665</sup> Liberty did not conduct a detailed analysis of this sub-metric, since Verizon has acknowledged that its reported results are unreliable.

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<sup>662</sup> Interview #62 (written response), May 31, 2003.

<sup>663</sup> Verizon checks both ASR and LSR orders for DS1, but Verizon had indicated during Liberty’s audit of the Ordering domain that CLECs currently do not submit DS1 orders via LSRs.

<sup>664</sup> Response to Data Request #719.

<sup>665</sup> CCNJ2003-08414-Pro.



### PR-1-12 – Average Interval Offered –Disconnects

Verizon reports PR-1-12 retail, resale, and UNE results for the POTS (including complex) and specials product groups. The Guidelines define complex orders as those including 2-wire digital services (basic rate ISDN) and 2-wire xDSL services. Verizon reports both dispatched and non-dispatched orders in this measure. Verizon indicated that it included POTS and 2-wire digital services in the resale and retail POTS (including complex) product groups, and POTS, 2-wire digital, and xDSL services in the UNE POTS (including complex) product group.<sup>666</sup> It is not clear why Verizon defines the resale and retail product groups in this way. Verizon should seek to clarify its definition for these products groups in the Guidelines.

Verizon indicated that it did not assign original appointment codes to disconnect orders, since it did not have a standard interval for this activity and typically completed such orders on the date that the customer requested.<sup>667</sup> As such, Verizon is unable to apply the Guidelines exclusion regarding orders where the customer requested an earlier or later date than the offered interval for this sub-metric. Verizon’s approach is reasonable given its business practices, but it is not in compliance with the Guidelines. Liberty recommends that Verizon seek a clarification to the Guidelines to omit this exclusion for the PR-1-12 measure.

Liberty examined the algorithms that Verizon uses to calculate the PR-1-12 measure. The formula for the sub-metric set forth in the Guidelines is as follows:

- Numerator: The sum of the committed due date less the application date for product group disconnect (D and F) orders
- Denominator: The number of orders for the product group.

Liberty found that all of the product-specific algorithms that Verizon uses to calculate this measure are incorrect. For all product groups, Verizon includes in the PR-1-12 measure all D and F orders. Verizon also includes “C” change orders that have disconnect activity associated with them (for LSR related service orders).<sup>668</sup> This treatment is reasonable but not consistent with the Guidelines definition for the denominator of this measure, which specifies only D and F orders. Liberty recommends that Verizon seek a clarification to the Guidelines regarding disconnect activity on change orders.

Since Verizon applies its global exclusion to LSR-related service orders, it inappropriately excludes companion disconnect orders on migrations from product results, which is inconsistent with the Guidelines definition for the denominator of this measure. Liberty recommends that Verizon include such D orders in PR-1-12 results.

For UNE specials ordered via LSRs, Verizon inappropriately includes an additional logic step in its algorithm to check if there was a CLEC delay associated with the order. This exclusion is not valid for PR-1 measures, but rather relates to PR-2. Liberty also found that Verizon did not check for negative intervals for ASR-related service orders.

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<sup>666</sup> IR #62 (written response), May 31, 2003.

<sup>667</sup> Interview #61, May 29, 2003.

<sup>668</sup> Verizon selects orders with a C-disconnect flag of Y.

Liberty concluded that Verizon’s method for calculating PR-1-12 results is not consistent with the Guidelines.

## **C. PR-2, Average Interval Completed**

### **1. Background**

The metrics within PR-2 report the average number of business days between order application date and completion date. The Guidelines define the application date as the date that Verizon receives a valid service request. The ten PR-2 sub-metrics focus on distinct categories of service orders, *i.e.*, dispatched, non-dispatched, and total, and vary based on number of lines in the order or by product. The Guidelines require Verizon to report results by distinct wholesale and retail product groups, dependent upon the sub-metric.

Under the Guidelines, Verizon should consider all orders that it receives after the cut-off time indicated in the Verizon Product Interval Guide as been received the next business day at 8 a.m., and the cut-off time for retail and wholesale should be the same for analogous products.

The exclusions that apply to PR-2 are:

- Verizon test orders
- Orders where the customer requests a due date that is greater than or less than the standard appointment interval
- Verizon administrative orders
- Orders with invalid intervals (*i.e.*, negative intervals or intervals greater than 200 days)
- Orders that are not complete
- Orders completed late due to end user or CLEC caused delay
- Additional segments on orders
- Suspend for non-payment and associated restore orders
- Verizon affiliate data from CLEC results
- Disconnect orders, except for PR-2-18
- For 2-wire digital services and 2-wire xDSL services, orders requiring manual loop qualification
- For trunks, projects, reciprocal trunks from Verizon to the CLEC, and new connect orders for CLECs initially establishing service in a Verizon central office.

Verizon reports results by individual and aggregate CLECs, Verizon retail, and individual and aggregate Verizon affiliates. For Specials, IOF, EEL, and Trunks product groups, Verizon reports on a statewide basis. For all other products, Verizon reports the results by each of the five geographic regions of New Jersey. For PR-2-09 UNE IOF and EEL products, the standard is an interval not greater than the applicable interval in the Verizon Product Interval Guide. For PR-2-01 and PR-2-02 UNE 2-wire xDSL loop products, there is no standard. The standard for all remaining PR-2 measures is parity with Verizon retail. None of the results within PR-2 are included in Verizon’s IP.

## 2. Analysis and Evaluation

The sub-metrics within PR-2 report Verizon's average completion interval for dispatched and non-dispatched service orders. The PR-2 measures closely mirror those of PR-1, except in PR-2 Verizon measures the completion interval rather than the appointment (offered) interval. As discussed in more detail in the introductory section, Verizon calculates the completion interval as the difference between the application date and the work completion date. Verizon indicated that its policy for PR-2 is to evaluate each service order once regarding a missed completion date, regardless of how many times Verizon misses any subsequent due dates.<sup>669</sup>

Verizon defines the product groups for PR-2 in the same way that it defines them for PR-1, and uses the same retail parity comparisons for PR-2 that it does for PR-1. Errors in product group definitions for PR-2 mirror those that Liberty found in PR-1.<sup>670</sup> For example, Verizon incorrectly defines the UNE xDSL product group.<sup>671</sup> For UNE POTS loops (PR-2-03 through PR-2-05), Verizon incorrectly excludes dispatched hot cut orders. Verizon does not check for negative completion intervals for UNE specials products ordered via ASRs.

The Guidelines require that Verizon consider hot cut loop orders completed upon acceptance by the CLEC. However, if the CLEC is not ready on the due date to test and accept, Verizon should complete the order. As discussed in more detail under PR-9, Verizon notifies the CLEC prior to the cut that Verizon is ready to proceed at the appointed frame due time, and Verizon verifies that the CLEC is prepared to continue. When the cut is complete, Verizon notifies the CLEC, either via phone or electronically, that the hot cut is complete. Verizon records the date and time of the CLEC's approval to continue, of the completion of the cut by the frame technician, and of the turn-up of the completed order to the CLEC. This turn-up time is the completion time for hot cut loop orders; Verizon does not wait for separate testing and acceptance by the CLEC before completing the order, and its process is consistent with the Guidelines.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon excludes test orders, administrative orders, orders with invalid intervals, and suspend for non-payment and associated restore orders. Verizon excludes affiliate data from CLEC results, and excludes disconnect orders except for PR-2-18. For 2-wire service, Verizon excludes orders requiring manual loop qualification. For a discussion of these exclusions, refer to the introductory section of this chapter.

The Guidelines require that Verizon report only completed orders in PR-2. Verizon accomplishes this exclusion by including only those LSR-related service orders with a report period value (the month in which the CRIS completion date for the order falls) during the reporting month. For ASR-related service orders, Verizon includes completed orders that have a status date during the

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<sup>669</sup> Interview #19, February 21, 2003

<sup>670</sup> Verizon's omission of cancelled orders from PR-1 results does not apply to PR-2, since PR-2 measures completed orders.

<sup>671</sup> As discussed in the PR-1 section, Verizon includes both the line sharing and line splitting products in this product group.

reporting month. The Guidelines also require that Verizon exclude orders where the customer requested a due date that is greater than or less than the standard available appointment interval. As discussed in PR-1, Verizon accomplishes this exclusion correctly for many product groups, but incorrectly for others.

The Guidelines require that Verizon exclude orders that it completes late due to any end user or CLEC-caused delay. Verizon calculates a subscriber delay indicator field in NMP, which its metric algorithms use to exclude orders that it completes late due to any CLEC-related delay. This subscriber delay indicator is set to Y if there was a delay associated with the order due to CLEC reasons (no access, customer not ready, customer requested a later due date, or subscriber CLEC problem).<sup>672</sup> Verizon does not, however, set the indicator to Y if the CLEC or subscriber requests an earlier appointment date prior to the due date. Verizon measures itself on the basis of the original appointment interval, not on any subsequently changed due date. Therefore, Verizon does not reflect in its performance results a case where a customer asked for an earlier due date and Verizon accepted the request. Instead, Verizon measures performance on such an order by whether it met the original due date.

For each of the PR-2 measures, Verizon uses a separate algorithm to calculate the result for each product group, and uses a separate algorithm for retail and wholesale results. Verizon uses the LSR Service Order Fact table data for almost all product group results except trunks, EELs, and IOF, for which Verizon uses the ASR Service Order Fact table data. Verizon uses both ASR and LSR Service Order Fact table data to calculate results for UNE specials.

#### **PR-2-01 – Average Interval Completed – Total No Dispatch**

Verizon reports PR-2-01 results for the following products:

<b>Retail and Resale</b>	<b>UNE</b>
POTS – Residence	POTS – Hot Cut Loop
POTS – Business	POTS – Platform
	POTS – Other (UNE Switch & INP combined)
2-wire Digital Services	2-wire Digital Services
2-wire xDSL Services	2-wire xDSL Loops
	2-wire xDSL Line Sharing
Specials	Specials

Verizon includes only non-dispatched orders in PR-2-01 results.

Liberty examined the algorithms that Verizon uses to calculate the PR-2-01 measures. The formula for the PR-1-01 metric set forth in the Guidelines is as follows:

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<sup>672</sup> Response to Data Request #584. In response to Data Request #902, Verizon clarified that it calculated a different indicator for products ordered via ASRs. For these products, Verizon calculates a customer-not-ready indicator flag. NMP sets the indicator to Y if there was a customer-caused MAC code on the order

- Numerator: The sum of the completion date less the application date for orders without an outside dispatch by product group
- Denominator: The number of orders without an outside dispatch by product group.

To calculate the denominator for the measures, Verizon counts the number of non-dispatched completed service orders for the given product group. To calculate the numerator for PR-2-01, Verizon sums the completion intervals for all service orders identified in the denominator.

Liberty recalculated the CLEC aggregate result for the resale POTS residential product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>673</sup> For purposes of the replication, Liberty used the same algorithm as Verizon. For PR-2-01-2120, average interval completed, Liberty replicated Verizon’s denominator, as well as the overall result, 1.68 days.<sup>674</sup>

Liberty also recalculated Verizon’s retail parity measure, which is for the same POTS residential product group. Liberty replicated Verizon’s denominator, as well as the overall result, 0.69 days.<sup>675</sup>

Verizon reported no results for its affiliates for the resale POTS residential product. Liberty confirmed that there was no relevant data for these affiliates.

Liberty found an additional error in Verizon’s algorithm for resale POTS business (PR-2-01-2110). Verizon does not exclude disconnects on C orders, as it does in other cases. Thus Verizon has not properly applied the exclusion for this product.

### PR-2-02 – Average Interval Completed – Total Dispatch

Verizon reports PR-2-02 results for the following products:

Retail and Resale	UNE
2-wire Digital Services	2-wire Digital Services
2-wire xDSL Services	2-wire xDSL Loops
	2-wire xDSL Line Sharing
Specials	Specials

Verizon includes only dispatched orders in PR-2-02 results.

Liberty examined the algorithms that Verizon uses to calculate the PR-2-02 measures. The formula for the PR-2-02 metric set forth in the Guidelines is as follows:

- Numerator: The sum of the completion date less the application date for orders with an outside dispatch by product group
- Denominator: The number of orders with an outside dispatch by product group.

<sup>673</sup> Response to Data Request #582.

<sup>674</sup> Verizon reported a denominator of 3,649, and Liberty’s result was identical.

<sup>675</sup> Verizon reported a denominator of 171,726, and Liberty’s result was identical.

To calculate the denominator for the measure, Verizon counts the number of dispatched completed service orders for the given product group. To calculate the numerator for PR-2-02, Verizon sums the completion intervals for all service orders identified in the denominator.

Liberty recalculated the CLEC aggregate result for the UNE 2-wire digital xDSL line sharing product for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>676</sup> For purposes of the replication, Liberty used the same algorithm as Verizon. For PR-2-02-3343, average interval completed, Liberty replicated Verizon’s denominator, as well as the overall result, 3.04 days.<sup>677</sup>

Verizon reported no results for its affiliates for the UNE 2-wire digital xDSL line sharing product, and Liberty confirmed that there was no relevant data for these affiliates.

**PR-2-03 – Average Interval Completed – Dispatch (1-5 Lines), PR-2-04 – Average Interval Completed – Dispatch (6-9 Lines), and PR-2-05 – Average Interval Completed – Dispatch ( $\geq 10$  Lines)**

The PR-2-03, PR-2-04, and PR-2-05 sub-metrics are related, and report on dispatched POTS orders by varying order size (*i.e.*, number of lines). Verizon reports PR-2-03 results for retail and resale POTS business and POTS residential, and for UNE POTS loop and POTS platform products. For the PR-2-04 and PR-2-05 sub-metrics, Verizon reports results for retail and resale POTS total and for UNE POTS loop and POTS platform products.

Verizon includes only dispatched orders in PR-2-03, PR-2-04, and PR-2-05 results. Verizon uses a line counter field calculated within NMP to select service orders by size in its metrics algorithms.

Liberty examined the algorithms that Verizon uses to calculate the PR-2-03, PR-2-04, and PR-2-05 measures. The formula for the sub-metrics set forth in the Guidelines is as follows:

- Numerator: The sum of the completion date less the application date for POTS orders with an outside dispatch by product group for orders with 1-5 lines/6-9 lines/10 or more lines
- Denominator: The number of POTS orders with an outside dispatch by product group for orders with 1-5 lines/6-9 lines/10 or more lines.

To calculate the denominator for the measures, Verizon counts the number of dispatched completed service orders for the given product group (by appropriate number of lines). To calculate the numerators for PR-2-03, PR-2-04, and PR-2-05, Verizon sums the completion intervals for all service orders identified in the denominator.

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<sup>676</sup> Response to Data Request #582.

<sup>677</sup> Verizon reported a denominator of 57, and Liberty’s result was identical.

Liberty recalculated the CLEC aggregate result for the UNE platform (1-5 lines) product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>678</sup> For purposes of the replication, Liberty used the same algorithm as Verizon. For PR-2-03-3140, average interval completed, Liberty replicated Verizon’s denominator, as well as the overall result, 4.28 days.<sup>679</sup> Liberty also recalculated the Verizon retail parity result for this product group, which is POTS business. Liberty replicated Verizon’s denominator, as well as the overall result, 4.43 days.<sup>680</sup>

Verizon reported no results for its affiliates for the UNE platform product group, and Liberty confirmed that there was no relevant data for these affiliates.

**PR-2-06 – Average Interval Completed – DS0, PR-2-07 – Average Interval Completed – DS1, and PR-2-08 – Average Interval Completed – DS3**

Verizon reports average interval completed for retail, resale, and UNE DS0, DS1, and DS3 specials in three separate sub-metrics in PR-2. Verizon reports both dispatched and non-dispatched orders in these measures.

Liberty did not conduct a detailed analysis of these three sub-metrics, since they are not included in Verizon’s IP and the volume of CLEC orders of these product types is very small. During February 2003, there were only 3 resale and 15 UNE completed DS0, DS1, and DS3 specials service orders reported by Verizon.

Liberty did, however, examine the algorithms that Verizon uses to calculate these results. Liberty found that Verizon did not check for negative intervals for specials ordered via ASRs, *i.e.*, UNE DS0, DS1, and DS3 specials, and thus does not accurately implement the Guidelines exclusions for these products. Also, Verizon’s algorithm for the UNE DS0 product includes DS0 EEL products order via ASRs. Although the Guidelines do not explicitly state that Verizon should report EELs separately (as they do for PR-1), Verizon has adopted this convention for all other UNE specials product results that it reports in PR-2. Verizon should remove DS0 EEL products from PR-2-06 and seek a clarification to the Guidelines to include the requirement to report these products separately for PR-2.

**PR-2-09 – Average Interval Completed – Total**

Under the Guidelines, the average interval completed for trunks is the average number of business days between the date that Verizon receives a valid ASR (application date) and the date that the order is completed and the customer is notified.

Verizon reports PR-2-09 results for the following products:

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<sup>678</sup> Response to Data Request #582.

<sup>679</sup> Verizon reported a denominator of 766, and Liberty’s result was identical.

<sup>680</sup> Verizon reported a denominator of 3,337, and Liberty’s result was identical.

UNE	Retail	CLEC to VZ Trunks
IOF	IXC FGD Trunks ( $\leq 192$ Forecasted Trunks)	Interconnection Trunks ( $\leq 192$ Forecasted Trunks)
EEL	IXC FGD Trunks ( $> 192$ Forecasted Trunks and Unforecasted Trunks)	Interconnection Trunks ( $> 192$ Forecasted Trunks and Unforecasted Trunks)

The Guidelines require that Verizon exclude projects, reciprocal trunks from Verizon to the CLEC, and new connect orders for CLECs initially establishing service in a Verizon central office. Verizon indicated that it includes two-way trunks in the PR-2-09 trunk measures.<sup>681</sup>

The formula for the PR-2-09 metric set forth in the Guidelines is as follows:

- Numerator: The sum of the completion date less the application date for product group orders
- Denominator: The number of orders by product group.

Verizon indicated that it found significant errors in its PR-2-09 algorithms. Verizon does not exclude trunk orders with invalid or negative appointment intervals, which is inconsistent with the Guidelines. Verizon also includes trunk orders with no due date.<sup>682</sup> Liberty did not conduct a detailed analysis of this sub-metric, since Verizon has acknowledged that its reported results are unreliable.

### **PR-2-18 – Average Interval Completed –Disconnects**

Verizon reports PR-2-18 retail, resale and UNE results for POTS (including complex) and specials. The Guidelines define complex orders as those including 2-wire digital services (basic rate ISDN) and 2-wire xDSL services. Verizon reports both dispatched and non-dispatched orders in this measure. Verizon indicated that it included POTS and 2-wire digital services in the resale and retail POTS (including complex) product groups, and POTS, 2-wire digital, and xDSL services in the UNE POTS (including complex) product group.<sup>683</sup> It is not clear why Verizon defines the resale and retail product groups in this way. Verizon should seek to clarify its definition for these products groups in the Guidelines.

As noted in PR-1, Verizon indicated that it did not assign original appointment codes to disconnect orders, since it did not have a standard interval for this activity and typically completed such orders on the date that the customer requested. As such, Verizon is unable to apply the Guidelines exclusion regarding orders where the customer requested an earlier or later date than the offered interval for this sub-metric. Verizon’s approach is reasonable given its business practices, but it is not in compliance with the Guidelines. Liberty recommends that Verizon seek a clarification to the Guidelines to omit this exclusion for the PR-2-18 measure.

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<sup>681</sup> Response to Data Request #719.

<sup>682</sup> CCNJ2003-08414-Pro.

<sup>683</sup> Interview #62 (written response), May 31, 2003.



Liberty examined the algorithms that Verizon uses to calculate the PR-2-18 measure. The formula for the sub-metric set forth in the Guidelines is as follows:

- Numerator: The sum of the completion date less the application date for product group disconnect (D and F) orders
- Denominator: The number of orders for the product group.

Liberty found that all of the product-specific algorithms that Verizon uses to calculate this measure are incorrect.<sup>684</sup> For all product groups, Verizon includes in the PR-2-18 measure all D and F orders. Verizon also includes change orders that have disconnect activity associated with them (for LSR related service orders). This treatment is reasonable but not consistent with the Guidelines definition for the denominator of this measure, which specifies only D and F orders. Liberty recommends that Verizon seek a clarification to the Guidelines regarding disconnect activity on change orders.

Since Verizon applies its global exclusion to LSR-related service orders, it inappropriately excludes disconnect orders on migrations from product results, which is inconsistent with the Guidelines definition for the denominator of this measure. Liberty recommends that Verizon include such D orders in PR-2-18 results. Liberty also found that Verizon did not check for negative intervals for ASR-related service orders.

Liberty concluded that Verizon's method for calculating PR-2-18 results is not consistent with the Guidelines.

## **D. PR-3, Completed within Specified Number of Days (1-5 Lines)**

### **1. Background**

The metrics within PR-3 report the percentage of orders completed in a specified number of business days between application and work completion dates. The measures within PR-3 apply to orders of five or fewer lines. The Guidelines define the application date as the date (day 0) that Verizon received a valid service request. The eleven PR-3 sub-metrics focus on distinct categories of service orders, *i.e.*, dispatched, non-dispatched, and total, and vary based on the specified number of days. The Guidelines require Verizon to report results by distinct wholesale and retail POTS and 2-wire product groups, dependent upon the sub-metric.

Under the Guidelines, Verizon should consider all orders that it receives after the cut-off time indicated in the Product Interval Guide as if it received them the next business day at 8 a.m., and the cut-off time for retail and wholesale should be the same for analogous products.

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<sup>684</sup> Liberty also found that Verizon's algorithm for resale specials contains an unnecessary module that checked for ASR resale specials, and that Verizon's algorithm for UNE specials was missing the module that checked for ASR UNE specials. Liberty acknowledges that this may reflect a problem with Verizon's MBR documentation rather than its algorithms.

The exclusions that apply to PR-3 are:

- Verizon test orders
- Orders where the customer requests a due date that is greater than or less than the standard appointment interval
- Verizon administrative orders
- Orders with invalid intervals (*i.e.*, negative intervals or intervals greater than 200 days)
- Orders that are not complete
- Orders completed late due to end user or CLEC caused delay
- Additional segments on orders
- Suspend for non-payment and associated restore orders
- Coordinated cutover unbundled network elements such as loops or number portability orders
- Disconnect orders
- Verizon affiliate data from CLEC results
- For 2-wire digital services and 2-wire xDSL services (except for PR-3-11), orders requiring manual loop qualification and orders missed due to facility reasons.

Verizon reports results by individual and aggregate CLECs, Verizon retail, and individual and aggregate Verizon affiliates. For all products, Verizon reports the results by each of the five geographic regions of New Jersey. For PR-3-10 UNE 2-wire xDSL loops, the standard is 95 percent.<sup>685</sup> For all other products, the standard is parity with Verizon retail. There are five reported results within PR-3 included in Verizon’s IP. For the period November 2001 through January 2003, two of these measures resulted in penalty payments totaling just over \$21,000.<sup>686</sup>

## **2. Analysis and Evaluation**

The sub-metrics within PR-3 report Verizon’s performance in completing dispatched and non-dispatched service orders for one to five lines within a specified number of days. The PR-3 metrics closely mirror those of PR-2, except the PR-3 measures focus on orders with 1 to 5 lines, and measure percentage completion within specified intervals, rather than average completion. As discussed in more detail in the introductory section, Verizon calculates the completion interval as the difference between the application date and the work completion date.

Verizon defines the product groups for PR-3 in the same way that it defines them for PR-2, and uses the same retail parity comparisons for PR-3 that it does for PR-2.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon excludes test orders, administrative orders, disconnect order, orders with invalid intervals, and suspend for non-payment and associated restore orders. Verizon excludes affiliate data from

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<sup>685</sup> This standard also applied to PR-3-11. As indicated in the Guidelines (footnote 35), PR-3-11 was an interim measure that Verizon could cease to measure when it implemented a pre-order function for manual loop qualification. Verizon no longer reports this sub-metric.

<sup>686</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

CLEC results. For 2-wire services, Verizon excludes orders requiring manual loop qualification. For a discussion of these exclusions, refer to the introductory section of this chapter.

The Guidelines require that Verizon report only completed orders in PR-3. As discussed in PR-2, Verizon accurately applies this exclusion. The Guidelines also require that Verizon exclude orders where the customer requested a due date that is greater than or less than the standard available appointment interval. As discussed in PR-1, Verizon accomplishes this exclusion correctly for most product groups, but incorrectly for others. The Guidelines also require that Verizon exclude coordinated cut-over unbundled network elements such as loops or number portability orders. Verizon uses a hot cut field from MISOS to identify service orders for hot cuts, and excludes these orders in its metric algorithm for the UNE POTS platform and other product group.

The Guidelines require that Verizon exclude orders that it completes late due to any end user or CLEC-caused delay. As discussed in PR-2, Verizon calculates a subscriber delay indicator field in NMP, which its metric algorithms use to exclude orders that Verizon completes late due to any CLEC-related delay. The Guidelines state that Verizon should exclude from 2-wire digital and 2-wire xDSL service any orders missed due to facility reasons. Verizon calculates a facilities-miss indicator in NMP, which its metric algorithm uses to exclude such orders from results. NMP assigns this indicator a Y if the CISR MAC (*i.e.*, the first Verizon MAC code) for the order was a Verizon MAC code for bad cable facilities or other Verizon facilities reasons, including a failure to assign a cable pair by the due date. Verizon therefore excludes the order only if the facilities MAC code was the first Verizon-caused delay on the order. Verizon’s approach for applying this exclusion is reasonable; however Verizon should seek a clarification to the Guidelines to reflect its interpretation of this exclusion.

For each of the PR-3 measures, Verizon uses a separate algorithm to calculate the result for each product group, and uses a separate algorithm for retail and wholesale results. Verizon uses the LSR Service Order Fact table data for all product group results.

Verizon found problems with its PR-3 metrics. Verizon found that it was incorrectly calculating the numerator of PR-3-07 using a completion interval between 0 and 200 days, rather than between 0 and 4 days. Verizon indicated the error was limited to retail only.<sup>687</sup> Verizon found that for certain PR-3 metrics, it was not excluding orders where the customer requested a due date that was less than the standard available interval.<sup>688</sup>

For this measure group, Liberty focused its analysis on the two sub-metrics within PR-3 that are included within Verizon’s IP, PR-3-08 and PR-3-10.

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<sup>687</sup> CCNJ2003-08146-Pro.

<sup>688</sup> CCNJ2003-07966-Pro, Verizon indicated that there was no material impact to results for the PR-3-01, PR-3-02, and PR-3-03.

### **PR-3-08 – Percentage Completed in 5 Days (1-5 Lines – No Dispatch)**

Verizon reports PR-3-08 results for retail and resale POTS total and for UNE POTS platform and other (UNE switch and INP) combined. Verizon includes only non-dispatched completed orders in PR-3-08 results.

Liberty examined the algorithms that Verizon uses to calculate the PR-3-08 measures. The formula for the PR-3-08 metric set forth in the Guidelines is as follows:

- Numerator: The number of no dispatch POTS orders with 1 to 5 lines where completion date less application date is 5 or fewer days
- Denominator: The number of no dispatch POTS orders with 1 to 5 lines.

To calculate the denominator for the measure, Verizon counts the number of non-dispatched completed POTS service orders with 1 to 5 lines. To calculate the numerator, Verizon counts the number of orders identified in the denominator that have a completion interval between 0 and 5 days.

Liberty found that Verizon’s method for calculating this measure is in compliance with the Guideline.

### **PR-3-10 – Percentage Completed in 6 Days (1-5 Lines – Total)**

Verizon reports PR-3-10 results for the following products:

<b>Retail and Resale</b>	<b>UNE</b>
POTS - Total	POTS Platform and Other (UNE switch and INP)
2-wire Digital Services	2-wire Digital Services
2-wire xDSL Services	2-wire xDSL Loops
	2-wire xDSL Line Sharing

Verizon includes both dispatched and non-dispatched completed orders in PR-3-10 results. Verizon excludes orders missed due to facilities reasons for 2-wire digital and xDSL results.

Liberty examined the algorithms that Verizon uses to calculate the PR-3-10 measures. The formula for the PR-3-10 metric set forth in the Guidelines is as follows:

- Numerator: The number of orders (by the specified product) with 1 to 5 lines where completion date less application date is 6 or fewer days
- Denominator: The number of orders (by the specified product) with 1 to 5 lines.

To calculate the denominator for the measure, Verizon counts the number of completed service orders with 1 to 5 lines for the specific product group. To calculate the numerator, Verizon counts the number of orders identified in the denominator that have a completion interval between 0 and 6 days.

Liberty found an error in Verizon's algorithm for UNE 2-wire xDSL loops. Verizon counts the number of orders with completion intervals between 0 and 200 days in the numerator, rather than those between 0 and 6 days.

For the UNE 2-wire xDSL line sharing product group, Verizon includes retail line sharing orders and UNE line splitting orders for this product group, rather than line sharing only. As noted in PR-1, Verizon should report line sharing products only in this product group.

Verizon did not provide its algorithm for UNE POTS platform and other product group in its latest version of the MBR, and Liberty was therefore unable to evaluate it.

Liberty concluded that Verizon's method for calculating the PR-3-10 measures does not conform to the Guidelines.

## **E. Findings and Recommendations, PR-1 through PR-3**

### **Verizon does not include all cancelled service orders in PR-1 results.**

Verizon's current method for calculating this metric omits cancelled LSR-related service orders, but includes cancelled ASR-related service orders. Liberty recommends that Verizon change its method for calculating the PR-1 measure to include cancelled orders for all products. Liberty also recommends that Verizon seek a clarification to the Guidelines to make clear what status of service orders it should include in the metrics.

### **Verizon's definitions for the UNE 2-wire xDSL Line Sharing product group for PR-1 through PR-3, and for the UNE POTS Loop product group for PR-1 and PR-2 do not conform to the Guidelines.**

Verizon combines line splitting results with line sharing results in the UNE 2-wire xDSL line sharing product group, which does not conform to the Guidelines. Liberty recommends that Verizon either seek to add a separate product group for line splitting, or seek a modification to the Guidelines to expand the line sharing product group to include both products.

Verizon excludes UNE hot cut loops that are on IDLC systems and require a dispatch from the UNE POTS loop product group for PR-1 and PR-2. The Guidelines do not specify this. Verizon does not report these IDLC products in any other product group. Verizon should change its definition for the UNE POTS loop product group to include hot cut loops that are on IDLC systems.

**Verizon includes one-day-or-less 2-wire digital and xDSL features-only orders in its retail and resale POTS product group results for PR-1 through PR-3, which is reasonable, but not specified in the Guidelines.**

Verizon currently treats 2-wire digital and xDSL “one-day-or-less” features-only orders as POTS feature orders on digital service, and includes these orders in the results for retail and resale POTS product groups. Verizon should seek a clarification to the Guidelines to reflect this convention.

**Verizon incorrectly implements the exclusion for orders where the customer requested a due date that is greater than or less than the standard offered interval for certain products in its resale product groups for PR-1 through PR-3.**

Verizon includes “as is” migrations in the resale POTS, 2-wire digital, 2-wire xDSL, and specials product groups. The standard interval for resale “as is” migrations is the same business day. Verizon does not verify whether the appointment interval for these products was consistent with the standard, and instead includes the orders in non-dispatched resale product group results if they have an interval of two days (or in the case of POTS, one day) or less. Verizon should either change its practice to only include those orders where the customer selected the standard offered interval, or seek a clarification to the Guidelines to reflect its treatment for migrate “as is” activity.

**Verizon incorrectly omits certain disconnect orders from PR-1-12 and PR-2-18 results.**

Verizon does not include companion disconnect orders on migration orders in its sub-metrics that report on D and F disconnection orders, PR-1-12 and PR-2-18. Verizon should correct its method to include these orders.

**Verizon makes inappropriate retail and wholesale comparisons in the PR-1 through PR-3 metrics.**

The Guidelines do not specify which retail POTS product Verizon should use as the parity comparison for the UNE POTS hot cut loop, UNE POTS platform, and POTS other product groups. Verizon uses its retail business POTS result. Instead, Verizon should use a weighted average of its retail POTS business and POTS residential group results to more closely mirror the UNE wholesale product groups, which contain both residential and business service order activity.

**Verizon’s metric algorithms for PR-1, PR-2, and PR-3 contain errors.**

Verizon has a significant number of errors in its metrics algorithms, including:

- Verizon does not exclude UNE specials ASR-related service orders with negative intervals from PR-1 and PR-2 results.
- Verizon found that it did not exclude trunk orders with invalid or negative intervals from its trunk product group results for PR-1 and PR-2.
- Verizon’s algorithm for the PR-1-01 resale POTS business product group includes both residential and business POTS “one-day-or-less” 2-wire features orders.
- Verizon’s algorithm for PR-1-12 has an incorrect exclusion for CLEC delay.
- Verizon’s algorithm for the PR-2-01 resale POTS business product group incorrectly includes orders with disconnect activity.
- Verizon’s algorithm for the PR-2-06 DS0 product group includes EEL DS0s, which Verizon should report separately.
- Verizon’s algorithm for the numerator of the PR-3-10 UNE 2-wire xDSL loop product group counts orders with completion intervals between 0 and 200 days instead of between 0 and 6 days. Verizon found similar errors in its PR-3-07 algorithms.

Verizon should correct its algorithms, and identify and correct instances where similar errors occur.<sup>689</sup>

**Verizon should seek clarifications to the Guidelines for certain conventions it had adopted for calculating the PR-1 to PR-3 metrics which, while reasonable, are not specified in the Guidelines.**

- Verizon does not assign original appointment codes to D and F orders, which it measures in PR-1-12 and PR-2-18, and as such is unable to apply the Guidelines exclusion for orders where the customer requested an earlier or later due date than the offered interval. Verizon should seek a clarification to the Guidelines to omit the exclusion for these two sub-metrics.
- Verizon includes C orders with disconnect activity in the PR-1-12 and PR-2-18 sub-metrics. This convention is reasonable, but Verizon should seek to clarify this convention in the Guidelines.
- Verizon reports EEL products separately in PR-1 and PR-2 (except for PR-2-06), but this reporting convention is not contained in the Guidelines for PR-2. Liberty recommends that Verizon seek a clarification to include the requirement to report EEL products separately from the DS0 and UNE specials product groups.
- Verizon should clarify its definition for the resale and retail POTS (including complex) product groups for PR-1-12 and PR-2-18.
- Verizon should clarify its interpretation of the exclusion in PR-3 (applicable only to 2-wire digital and 2-wire xDSL services) for orders missed due to facilities reasons.

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<sup>689</sup> This correction may involve the algorithm documentation only and not the code used to calculate the metrics.

## **F. PR-4, Missed Appointments**

### **1. Background**

The metrics within PR-4 report the percentage of orders completed after the committed date. Verizon reports its missed appointment performance in eleven sub-metrics within PR-4:

- Percentage missed appointments due to Verizon reasons (PR-4-01)
- Average delay delays (PR-4-02)
- Percentage missed appointments due to CLEC or end user delay (PR-4-03)
- Percentage missed appointments on dispatched orders due to Verizon reasons (PR-4-04)
- Percentage missed appointments on no-dispatch orders due to Verizon reasons (PR-4-05)
- Percentage on-time performance – LNP only (PR-4-07)
- Percentage missed appointments due to CLEC or end user delay, when the reason for delay is late order confirmation (PR-4-08)
- Percentage missed appointments for W-coded orders due to Verizon reasons (PR-4-09)
- Percentage missed appointments for dispatched W-coded orders due to Verizon reasons (PR-4-10)
- Percentage missed appointments for no-dispatch W-coded orders due to Verizon reasons (PR-4-11)
- Percentage completed on time – 2 -wire xDSL loops (PR-4-14).

The Guidelines require Verizon to report results by distinct wholesale and retail product groups, dependent upon the sub-metric.

The exclusions that apply to PR-4 are:

- Verizon test orders
- Verizon administrative orders
- Orders that are not complete
- Additional segments on orders
- Suspend for non-payment and associated restore orders
- Disconnect orders
- Verizon affiliate data from CLEC results
- For sub-metrics PR-4-04 and PR-4-14, 2-wire digital services and 2-wire xDSL services, orders missed due to facility reasons
- For all metrics other than PR-4-03 and PR-4-08, orders not completed on time due to CLEC or end-user delay.

Verizon reports results by individual and aggregate CLECs, Verizon retail, and individual and aggregate Verizon affiliates. For Specials, IOF, EEL, and Trunks product groups, Verizon reports on a statewide basis. For all other products, Verizon reports the results by each of the five



geographic regions of New Jersey. For the PR-4 measures, the standard is parity with Verizon retail, with the following exceptions:

- For PR4-02, UNE 2-wire xDSL Loops, the standard is not more than 5 percent
- For PR-4-07 LNP and PR-4-14, the standard is 95 percent on time
- For PR-4-03 and PR-4-08, there is no standard.

There are 32 reported results within PR-4 that are included in Verizon's IP. For the period November 2001 through January 2003, 13 of these measures resulted in penalty payments totaling \$92,479.<sup>690</sup>

## **2. Analysis and Evaluation**

The 11 sub-metrics within PR-4 report Verizon's performance regarding missed appointments across a broad number of categories and product groups. Eight of the PR-4 sub-metrics measure the percentage of appointments missed for Verizon or customer reasons. One sub-metric, PR-4-02, measures the average delay days associated with appointments missed for Verizon reasons. There are two PR-4 sub-metrics that measure on time performance, PR-4-07 and PR-4-14. The one result in PR-4-07 focuses on percentage on time performance for LNP-only service orders, and PR-4-14 focus on percentage on time performance for UNE 2-wire xDSL orders.

For those sub-metrics that measure percentage missed appointments, Verizon includes all completed service orders as the relevant population of orders for these measures. For PR-4-02, Verizon includes all completed service orders missed for Verizon reasons as the relevant population for this measure. To select late orders for the numerator of the PR-4 sub-metrics that measure percentage of missed appointments, Verizon evaluates whether the completion date was later than the due date. Depending upon the sub-metric, Verizon further refines these orders for various criteria such as whether the miss was due to Verizon or customer reasons, involved a dispatch or not, was an order where the customer accepted the standard interval, or was late due to a late firm order confirmation.

Verizon defines the product groups in PR-4 in the same fashion as it did for PR-1 through PR-3. As noted in PR-1, Verizon incorrectly defines the UNE xDSL line sharing product group by including line splitting. However there are two product groups included in PR-4 that were not used in PR-1 through PR-3, *i.e.*, UNE POTS loop new and UNE xDSL services. Verizon includes both xDSL loops and xDSL line sharing in the UNE xDSL services product group. For the UNE POTS loop new product group, Verizon includes UNE loop orders as long as there is at least one inward line on the order, which indicates a new loop.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon excludes test orders, administrative orders, disconnect orders, and suspend for non-payment and associated restore orders. Verizon excludes affiliate data from CLEC results. For a discussion of these exclusions, refer to the introductory section of this chapter.

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<sup>690</sup> Incentive payment reports provided to Liberty by the Board's Staff.

The Guidelines require that Verizon report only completed orders in PR-4. As discussed in PR-2, Verizon accurately applies this exclusion. The Guidelines state that Verizon exclude from PR-4-04 and PR-4-14 results for 2-wire digital and 2-wire xDSL service any orders missed due to facility reasons. Verizon calculates a facilities-miss indicator in NMP, which its metric algorithm uses to exclude such orders from results. NMP assigns this facilities-miss indicator a Y if the CISR MAC (*i.e.*, the first Verizon MAC code) for the order was a Verizon MAC code for bad cable facilities or other Verizon facilities reasons, including a failure to assign a cable pair by the due date. Verizon therefore excludes the order only if the facilities MAC code was the first Verizon-caused delay on the order. Verizon’s approach for applying this exclusion is reasonable; however, Verizon should seek a clarification to the Guidelines to reflect its interpretation of this exclusion.

Except for PR-4-03 and PR-4-08 (which pertain to appointments missed for customer reasons), the Guidelines require that Verizon exclude from PR-4 measures those orders not completed on time due to end user or CLEC-caused delay. Verizon does not interpret this exclusion for “orders not completed on time” to mean the same as the exclusion in PR-2 and PR-3 for “orders completed late.” For PR-4, Verizon excludes orders with CLEC-caused delay only if it misses the order. If there was a CLEC-caused delay on the order and Verizon meets any revised due date, it does not exclude such orders from the metric.

For PR-4 (except for PR-4-03 and PR-4-08), Verizon does not explicitly exclude orders with CLEC-caused delay, but rather selects orders for the numerator based on whether or not the order was missed for Verizon reasons. Verizon measures its performance against any revised due date, not the original due date (as it does for PR-2 and PR-3). Verizon uses the CISR MAC field and selects those orders that were not on time due to company reasons (*i.e.*, a CISR MAC code beginning the “C”). As discussed in the introductory section, if a service order has a combination of MAC codes, then NMP sets the CISR MAC as the first Verizon-caused miss.<sup>691</sup> For example, when a CLEC supplements an order to change the due date, Verizon assigns a customer-caused MAC code to the order along with a subsequent due date. If Verizon misses the subsequent due date, however, Verizon also assigns a company-caused MAC code to the order, NMP sets the CISR MAC as company-caused, and Verizon treats the order as a miss in PR-4. If the CLEC supplements the order multiple times and Verizon misses any of the due dates, Verizon treats the order as a miss. Verizon counts the service order once, and scores at most one missed appointment per order.<sup>692</sup> This interpretation of the Guidelines is reasonable; however the difference between the exclusion for “orders completed late” and “orders not completed on time” is not readily apparent in the Guidelines. Liberty recommends that Verizon seek a clarification to the Guidelines for PR-4 to make its interpretation more apparent.

Verizon treats certain infrequent cases where it missed the order due date as an exception to the rule. Verizon calculates the number of days by which it completed the order late due to company reasons, and excludes any order with a Verizon-caused CISR MAC code if the number of days by which the company missed the order was zero. For example, if a Verizon technician gets sick

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<sup>691</sup> If all MAC codes on an order are customer-caused, Verizon sets the CISR MAC to a customer-caused code. Verizon uses the customer-caused CISR MAC designation to select orders for the numerators of the PR-4-03 and PR-4-08 sub-metrics, which measure the percentage of missed appointments for customer reasons.

<sup>692</sup> Response to Data Request #237.

on the due date, Verizon would assign a company-caused MAC code to the order. However, Verizon may schedule a different technician later in the day, and the customer may not be available. In that case, Verizon would then assign the order a customer-caused MAC code. If Verizon completes the order the next day, then the number of days by which the company missed the order would be zero, and Verizon would exclude the order from the numerator of the metrics (and exclude it from both numerator and denominator for PR-4-02). Verizon clarified that it scores an order as late for Verizon reasons only if there is a least one full day of company delay.<sup>693</sup> Liberty does not believe the Guidelines anticipated such infrequent situations. This convention is reasonable, although it is inconsistent with the Guidelines. Verizon should either cease using this interpretation, or seek a clarification to the Guidelines to recognize such cases.

For each of the PR-4 measures, Verizon uses a separate algorithm to calculate the result for each product group, and uses a separate algorithm for retail and wholesale results. Verizon uses the LSR Service Order Fact table data for almost all product group results except trunks, EELs and IOF, for which Verizon uses the ASR Service Order Fact table data. Verizon uses both ASR and LSR Service Order Fact table data to calculate results for UNE specials.

Liberty focused its detailed examination on the sub-metrics that are included in Verizon’s IP, PR-4-01, PR-4-02, PR-4-04, PR-4-05, PR-4-07, PR-4-11, and PR-4-14.

#### PR-4-01 – Percentage Missed Appointment – Verizon – Total

Verizon reports PR-4-01 results for the following products:

Retail	Resale	UNE	Trunks
Specials	Specials	Specials	CLEC Trunks
DS1		EEL	
DS3		IOF	
IXC FGD Trunks			

Verizon includes both dispatched and non-dispatched completed orders in PR-4-01. Under the Guidelines, the retail parity comparison for UNE IOF is retail DS3, and the retail parity comparison for UNE IOF is retail DS1.

Liberty found an error in Verizon’s algorithm for the resale specials product group. As discussed in PR-1, Verizon includes “as is” resale migrations in the resale specials product group. In PR-4-01, Verizon includes these migrations in the denominator, but effectively excludes them from the numerator.<sup>694</sup> Liberty recommends that Verizon correct this algorithm to include these migrations in the numerator.

Liberty examined the algorithms that Verizon uses to calculate the PR-4-01 measures. The formula for the PR-4-01 metric set forth in the Guidelines is as follows:

<sup>693</sup> Response to Data Request #936.

<sup>694</sup> Verizon includes orders with non-null original appointment codes in the numerator, and “as is” migrations have no original appointment code.

- Numerator: The number of orders/trunks where the order completion date is greater than the original due date due to Verizon reasons by product group
- Denominator: The number of orders/trunks completed by product group.

To calculate the denominator for the measures, Verizon counts the number completed service orders for the given product group. To calculate the numerator for PR-4-01, Verizon counts the number of service orders identified in the denominator that were late for Verizon reasons.

Liberty recalculated the CLEC aggregate result for the UNE specials product group for February 2003 using the LSR Service Order Fact and ASR Service Order Fact tables that Verizon provided.<sup>695</sup> For PR-4-01-3200, percentage missed appointments, Liberty replicated Verizon’s denominator, as well as the overall result, 3.66 percent.<sup>696</sup> Liberty also recalculated Verizon retail result for the same product group, and replicated Verizon’s denominator, as well as the overall result, 1.12 percent.<sup>697</sup>

#### **PR-4-02 – Average Delay Days – Total**

Verizon reports PR-4-02 results for the following products:

<b>Retail</b>	<b>Resale</b>	<b>UNE</b>	<b>Trunks</b>
POTS	POTS	POTS	CLEC Trunks
2-wire Digital Services	2-wire Digital Services	2-wire Digital Services	
2-wire xDSL Services	2-wire xDSL Services	2-wire xDSL Loops	
		2-wire xDSL Line Sharing	
Special DS0			
Specials	Specials	Specials	
DS1		EEL	
DS3		IOF	
IXC FGD Trunks			

Verizon includes both dispatched and non-dispatched orders that were late due to Verizon reasons in PR-4-02. Verizon calculates the delay days as the number of days that the order was completed beyond any revised due date for Verizon reasons. Verizon does not include EEL (DS0) products in its UNE specials product group because it reports EEL products separately. Under the Guidelines, the retail parity comparison for UNE IOF is retail DS3, and the retail parity comparison for UNE IOF is retail DS1.

Liberty found the same error in Verizon’s algorithm for the resale POTS product group as discussed in PR-4-01 for the resale specials products. Verizon incorrect excludes “as is” resale

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<sup>695</sup> Response to Data Request #582.

<sup>696</sup> Verizon reported a denominator of 82, and Liberty’s result was identical.

<sup>697</sup> Verizon reported a denominator of 3,674, and Liberty’s result was identical.

migrations from both the numerator and denominator because of an error in its algorithm for the resale POTS product group.

Liberty examined the algorithms that Verizon uses to calculate the PR-4-02 measure. The formula for the PR-4-02 metric set forth in the Guidelines is as follows:

- Numerator: The sum of the completion date less the due date for orders missed due to Verizon reasons by product group
- Denominator: The number of orders/trunks missed for Verizon reasons by product group.

To calculate the denominator for the measures, Verizon counts the number service orders that were completed late for Verizon reasons for the given product group. To calculate the numerator for PR-4-02, Verizon sums the number of delay days associated with the service orders it identified in the denominator.

Liberty recalculated the CLEC aggregate result for the UNE POTS product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>698</sup> For PR-4-02-3100, average delay days, Liberty replicated Verizon’s denominator, as well as the overall result, 1.86 days.<sup>699</sup> Liberty also recalculated Verizon retail result for the same product group, and replicated Verizon’s denominator, as well as the overall result, 2.65 days.<sup>700</sup>

#### PR-4-04 – Percentage Missed Appointment – Verizon – Dispatch

Verizon reports PR-4-04 results for the following products:

Retail	Resale	UNE
POTS	POTS	POTS - Platform
		POTS – Loop - New
2-wire Digital Services	2-wire Digital Services	2-wire Digital Services
2-wire xDSL Services	2-wire xDSL Services	2-wire xDSL Loops
		2-wire xDSL Line Sharing

Verizon reports only dispatched orders in PR-4-04. Consistent with the Guidelines, Verizon correctly excludes Verizon-caused missed appointments if the reason was a lack of facilities for 2-wire and 2-wire xDSL product groups.

Liberty examined the algorithms that Verizon uses to calculate the PR-4-04 measure. The formula for the PR-4-04 metric set forth in the Guidelines is as follows:

<sup>698</sup> Response to Data Request #582.

<sup>699</sup> Verizon reported a denominator of 87, and Liberty’s result was identical.

<sup>700</sup> Verizon reported a denominator of 5,213, and Liberty’s result was identical.

- Numerator: The number of dispatched orders where the order completion date is greater than the original due date due to Verizon reasons by product group
- Denominator: The number of dispatched orders completed by product group.

To calculate the denominator for the measures, Verizon counts the number dispatched completed service orders for the given product group. To calculate the numerator, Verizon counts the number of service orders identified in the denominator that were late for Verizon reasons.

Liberty recalculated the CLEC aggregate result for the resale POTS product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>701</sup> For PR-4-04-2100, percentage missed appointments, Liberty replicated Verizon’s denominator, as well as the overall result, 4.58 percent.<sup>702</sup> Liberty also recalculated Verizon retail result for the same product group, and replicated Verizon’s denominator, as well as the overall result, 9.79 percent.<sup>703</sup>

Liberty also recalculated the CLEC aggregate result for the UNE new POTS loop product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>704</sup> For PR-4-04-3113, percentage missed appointments, Liberty replicated Verizon’s denominator, as well as the overall result, 3.37 percent.<sup>705</sup> Verizon’s retail parity result is POTS total, which Liberty replicated at 9.79 percent.

#### **PR-4-05 – Percentage Missed Appointment – Verizon – No Dispatch**

Verizon reports PR-4-05 results for the following products:

<b>Retail</b>	<b>Resale</b>	<b>UNE</b>
POTS	POTS	POTS - Platform
		POTS – Other than Platform and Hot Cuts
2-wire Digital Services	2-wire Digital Services	2-wire Digital Services
2-wire xDSL Services	2-wire xDSL Services	2-wire xDSL Line Sharing

Verizon reports only non-dispatched orders in PR-4-05.

Liberty examined the algorithms that Verizon uses to calculate the PR-4-05 measure. The formula for the PR-4-05 metric set forth in the Guidelines is as follows:

- Numerator: The number of non-dispatched orders where the order completion date is greater than the original due date due to Verizon reasons by product group
- Denominator: The number of non-dispatched orders completed by product group.

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<sup>701</sup> Response to Data Request #582.

<sup>702</sup> Verizon reported a denominator of 2,095, and Liberty’s result was identical.

<sup>703</sup> Verizon reported a denominator of 23,754, and Liberty’s result was identical.

<sup>704</sup> Response to Data Request #582.

<sup>705</sup> Verizon reported a denominator of 89, and Liberty’s result was identical.

To calculate the denominator for the measure, Verizon counts the number non-dispatched completed service orders for the given product group. To calculate the numerator for PR-4-05, Verizon counts the number of service orders identified in the denominator that were late for Verizon reasons.

#### **PR-4-07 – Percentage On Time Performance – LNP Only**

The Guidelines define the PR-4-07 measure as the percentage of all LNP PONs (including the associated retail disconnect orders) where the trigger is in place before the frame due time and the Verizon completes the disconnection on or after the frame due time. The measure applies to LNP-only orders, and reports the percentage of LNP (retail disconnect) orders completed in translation on or after the date and time on the order. The Guidelines state that Verizon should consider as not met any orders disconnected early.

Verizon uses LNP Service Order Fact table data to calculate the PR-4-07 sub-metric. Verizon does not include any LNP orders related to remote call forwarding (INP).

Verizon creates a separate data source, the LNP Service Order Fact table, to calculate this sub-metric, because Verizon uses additional information (other than that in MISOS) from the LSMS and MARCH systems that it does not use for other kinds of orders. Both the MARCH and LSMS systems capture information at the telephone number level. Verizon selects completed service orders to include in the measure for the reporting month by the CRIS completion date (billing completion date) for the order.<sup>706</sup> This creates a lag in reporting because the CRIS completion date is typically later than actual work completion. However, Verizon will eventually report all orders.

Verizon uses two data fields from the MARCH system to identify LNP-only activity relevant for this measure. Verizon selects order that have a “Y” in the LNP-out field (which indicates that the port option for an LNP transaction is taken off the line in the Verizon switch) and a designation of “out” in the PKT field (which is assigned when the line is removed from the Verizon switch).<sup>707</sup>

Verizon confirmed that it measures LNP-only orders, and excludes LNP orders with a loop (*i.e.*, hot cuts). CLECs submit an LSR to request LNP on one or more telephone numbers. MISOS generates a service order for placement of the trigger and a disconnect retail service order to disconnect the line from the switch. The SOAC system sends a message to Verizon’s MARCH system telling it to set up a trigger within the Verizon switch and when Verizon should do it. When the switch actually accepts a trigger being set, the MARCH system records the “accepted” date and time. The MARCH system records trigger messages, the date and time that the CLEC ported the telephone number, and the date and time that Verizon updated the switch. Verizon indicated that at times some of these orders do fall out for manual handling.<sup>708</sup>

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<sup>706</sup> Response to Data Request #890.

<sup>707</sup> Responses to Data Requests #892 and #893.

<sup>708</sup> Interview #54, April 24, 2003.

Verizon indicated that it typically puts the trigger in place one day before the due date. However, in some cases, the CLEC may want it to be later, such as when it requests that Verizon expedite the order. After Verizon has placed the trigger on the switch, the CLEC ports the number to its own system at its own convenience, using Verizon’s LSMS system. The LSMS system records when the CLEC actually activates the port. In most cases, the CLEC accomplishes this porting on the due date. Once the CLEC has activated the port, Verizon processes the disconnection on the switch on or after 11:59 p.m. on the due date.<sup>709</sup>

Verizon reviews its performance in two separate provisioning functions to determine the results for the measure, *i.e.*, setting the trigger and disconnecting the line from the switch. Both the trigger and the disconnect must be done correctly on time for Verizon to count the order as met. Verizon does the scoring of the orders at the telephone number level, and then aggregates these back up to the service order level. Verizon has to meet the dates and times for all telephone numbers for it to consider the order as met; if Verizon misses one, it counts the entire service order as missed.

Verizon performs scoring of each telephone number on the service order within NMP. NMP checks whether the MARCH system put the trigger in place before the CLEC activated the port, and if so, assigns this portion of the order as met. NMP then evaluates the disconnection portion. First, NMP checks whether Verizon disconnected the line from the switch on or after the frame due time. If Verizon disconnected it early, NMP performs an additional check and, as long as Verizon disconnects the line from the switch after the CLEC activates the port, NMP assigns the disconnection portion of the order as met.<sup>710</sup> NMP calculates a metric met flag, which is set to Y only if it evaluates all telephone numbers on a service order as met.<sup>711</sup>

Verizon’s measurement process for this measure is not the same as that indicated in the Guidelines. Verizon checks whether the trigger is in place before the CLEC activates the port, not whether the trigger is in place before the frame due time. The frame due time on LNP-only orders is always 11:59 p.m. on the due date.<sup>712</sup> Verizon should seek a clarification to the Guidelines because it measures the trigger portion at a different (earlier) point in time. Verizon also may count the disconnection portion of the order as met, even though it disconnects the line from the switch earlier than the frame due time. This approach is reasonable, but not consistent with the Guidelines. Verizon should also seek a clarification to the Guidelines to reflect its current process.

Verizon indicated that before it extracts data from NMP for the LNP Service Order Fact table, its operations and regulatory support personnel review the data because in some cases NMP does not score orders correctly. Verizon cited as an example cases where the CLEC requests an early disconnect. The automated scoring procedure would show the disconnect as being missed

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<sup>709</sup> Interview #54, April 24, 2003.

<sup>710</sup> Verizon ASR Ordering and Provisioning System Design Document, p. 178. Although CLECs order LNP-only via LSR, Verizon includes the LNP-only process in its ASR system design document, since the same Verizon personnel are responsible for both areas.

<sup>711</sup> Response to Data Request #894.

<sup>712</sup> Interview #54, April 24, 2003.



because it was disconnected early. Verizon’s policy is that as long as it can document the request (such as a note in MISOS or WFA), it will change the scoring in such cases to a met. This practice, although reasonable, is inconsistent with the Guidelines, which state that Verizon should consider orders disconnected early as missed. Liberty recommends that Verizon seek a clarification to the Guidelines to amend this language to indicate an allowance for early disconnects at the request of the CLEC to be scored as a met, as long as Verizon can document the request.

Liberty reviewed how Verizon applied the PR-4 exclusions to this measure. Verizon excludes test orders using an exclusion indicator that it calculates within NMP in a similar fashion that it does for the LSR and ASR Service Order Fact tables, and excludes affiliate data in the same way that it does for other PR measures. Verizon excludes administrative orders from PR-4-07, consistent with the Guidelines.<sup>713</sup> Since the LNP-only orders involve disconnects, the Guidelines exclusion for disconnect orders is contradictory.<sup>714</sup> The exclusion for snip-and-restore orders is also not relevant for PR-4-07, because denials for non-payment are not a part of LNP service.<sup>715</sup> Verizon should seek a clarification to the Guidelines to indicate that these exclusions are not applicable to PR-4-07.

Liberty examined the algorithm that Verizon uses to calculate the PR-4-07 measure. The formula for the PR-4-07 metric set forth in the Guidelines is as follows:

- Numerator: The number of LNP orders, where the port trigger is completed before the frame due time (as scheduled on the order) and the retail disconnect is completed on or after the committed time frame (manual count)
- Denominator: The number of LNP orders completed (manual count).

To calculate the denominator for the measures, Verizon counts the number LNP-only orders with a CRIS completion date during the reporting month. To calculate the numerator, Verizon counts the number of service orders identified in the denominator that it classified as met.

Liberty recalculated the PR-4-07 result for February 2003 using the LNP Service Order Fact table that Verizon provided.<sup>716</sup> Liberty replicated Verizon’s denominator, as well as the overall result, 96.35 percent.<sup>717</sup>

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<sup>713</sup> Response to Data Request #938.

<sup>714</sup> Response to Data Request #938.

<sup>715</sup> Response to Data Request #938.

<sup>716</sup> Response to Data Request #582.

<sup>717</sup> Verizon reported a denominator of 137, and Liberty’s result was identical.

**PR-4-11 – Percentage Missed Appointment – Verizon – Standard Interval (W Coded) Orders – No Dispatch**

Verizon reports PR-4-11 results for the following products:

<b>Retail</b>	<b>Resale</b>	<b>UNE</b>
POTS	POTS	POTS - Platform
		POTS – Other than Platform and Hot Cut
2-wire Digital Services	2-wire Digital Services	2-wire Digital Services
2-wire xDSL Services	2-wire xDSL Services	2-wire xDSL Services

The PR-4-11 sub-metric is very similar to PR-4-05, except that it reports on only those orders that had an original appointment code of W, which means that the customer selected a due date consistent with the standard offered interval for the product. Verizon does not assign an original appointment code to “as is” resale migrations, however, which are record orders. Verizon does not evaluate the interval for these migrations. Rather, Verizon includes all “as is” resale migrations in the resale POTS, 2-wire digital and 2-wire xDSL product groups, regardless of whether the interval was consistent with the standard for this product. Verizon thus does not properly define the resale product groups for this measure.<sup>718</sup>

Liberty examined the algorithms that Verizon uses to calculate the PR-4-11 measure. The formula for the PR-4-11 metric set forth in the Guidelines is as follows:

- Numerator: The number of non-dispatched orders where the order completion date is greater than the original due date due to Verizon reasons by product group
- Denominator: The number of non-dispatched orders completed by product group.

To calculate the denominator for the measure, Verizon counts the number of “W-coded” service orders that involved no dispatch for the given product group. To calculate the numerator for PR-4-11, Verizon counts the number of service orders identified in the denominator that were late for Verizon reasons.

**PR-4-14 – Percentage On Time – 2-wire xDSL Loops**

The PR-4-14 sub-metric measures the percentage of UNE 2-wire xDSL loops that Verizon completes on time. The Guidelines specify that Verizon should consider the order completed on time if:

- For CLECs that timely provide serial numbers, Verizon completes the service order on the due date and provides a serial number, or
- For CLECs that do not timely provide serial numbers, Verizon completes the service on the due date.

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<sup>718</sup> Verizon has a similar error in the resale specials product group in PR-4-09 and in PR-1 where Liberty documents this finding.

The formula for the PR-4-14 metric set forth in the Guidelines is as follows:

- Numerator: The number of orders completed on or before the due date
- Denominator: The number of completed orders.

Verizon extracts information on all UNE 2-wire xDSL loop service orders completed in the reporting month from the WFA/DO system, since it requires information that is not contained in the LSR Service Order Fact table data. Unlike many of the PR metrics, Verizon uses the work completion date in WFA to select orders included in the metric, rather than the CRIS completion date. Verizon performs a series of steps in a stand-alone application outside of NMP to produce the metric results, and then converts the results into an ASCII file that it sends to the NMP reporting system.

When Verizon conducts interactive testing with the CLEC on these orders, its field technicians typically record a serial number, which is the confirmation number that the CLEC receives after it accepts the work. Verizon indicated that roughly half of the CLECs participate in this type of testing.<sup>719</sup> Under the Guidelines, the serial number is relevant to the measure only if the CLEC participates in field testing.

After Verizon extracts information on completed orders from WFA/DO, it copies the information into a database application that it created specifically for this metric. Verizon metric specialists review WFA/DO logs and comment fields to find the serial number for each order. The database application prompts the metric specialist to copy the serial number, or to provide a reason code for why he was unable to locate one (such as being unable to find a serial number in the log).

After the Verizon specialists complete the research on all completed orders, Verizon executes a macro that calculates whether the order was met or missed and creates a scored orders file. Verizon initially classifies any order that Verizon completed late as missed. Verizon then performs additional logic steps on this subset of missed order to determine whether they are included or excluded from the metric. Verizon reclassifies any missed order as excluded, rather than missed, if the reason for the missed due date was a customer MAC code or a Verizon facilities reason, which are both excluded from PR-4-14 under the Guidelines.

The macro initially scores all orders completed on time as met. Next, the macro uses a look-up table to determine if the CLEC participates in interactive testing.<sup>720</sup> For the subset of met orders submitted by CLECs who participate in testing, Verizon must perform additional logic steps to determine if it provided a serial number during testing. Verizon examines this subset of orders to determine if Verizon found a serial number or not. If Verizon could not locate a serial number for the order, it reclassifies the order as YNS, which means that the order was met but had no serial number.

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<sup>719</sup> Interview #54, April 24, 2003.

<sup>720</sup> Response to Data Request #673.

To calculate the denominator for the metric, Verizon counts the number of orders that it classified as met, met but had no serial number, and missed (and excludes those classified as excluded). To calculate the numerator for the metric, Verizon counts the number of met orders.

As for other PR-4 metrics, Verizon evaluates its performance on the basis of any revised due date for the order. Verizon will score the order as met as long as it completed the work by the revised due date and, if relevant, provided the serial number. If Verizon misses a revised due date and the reason that the due date changed was for customer reasons or a Verizon facilities delay, Verizon excludes the order.

## **G. PR-5, Facility Missed Orders**

### **1. Background**

The metrics within PR-5 report the percentage of dispatched orders completed after the committed date, where the cause of the delay is lack of Verizon facilities. Verizon reports its percentage of missed orders in three sub-metrics within PR-5: the percentage completed after the commitment date, the percentage completed more than 15 days after the commitment date, and the percentage completed more than 60 days after the commitment date. The Guidelines require Verizon to report results by distinct wholesale and retail product groups, dependent upon the sub-metric.

The exclusions that apply to PR-5 are:

- Verizon test orders
- Verizon administrative orders
- Orders that are not complete
- Additional segments on orders
- Suspend for non-payment and associated restore orders
- Disconnect orders
- Verizon affiliate data from CLEC results.

Verizon reports results by individual and aggregate CLECs, Verizon retail, and individual and aggregate Verizon affiliates. For Specials, IOF, EEL, and Trunks product groups, Verizon reports on a statewide basis. For all other products, Verizon reports the results by each of the five geographic regions of New Jersey. For all of the PR-5 measures, the standard is parity with Verizon retail. There are two reported results within PR-5 that are included in Verizon’s IP. For the period November 2001 through January 2003, Verizon did not make any incentive payments related to PR-5.<sup>721</sup>

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<sup>721</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

## 2. Analysis and Evaluation

PR-5-01 measures the percentage of missed appointments on dispatched orders due to lack of Verizon facilities. The PR-5-02 and PR-5-03 sub-metrics measure the percentage of dispatched orders that Verizon completed after the due date by more than 15 days and more than 60 days, respectively, due to lack of Verizon facilities.

To identify the orders missed due to Verizon facilities reasons, Verizon selects order with certain CISR MAC codes (“CA” and “CF”) that indicate bad cable facilities or other Verizon facilities reasons, including a failure to assign a cable pair by the due date. As discussed in PR-4, Verizon calculates the number of days by which it missed the order due to company reasons, and excludes any order from the numerator of PR-5-01 with a Verizon-caused CISR MAC code if the number of days by which the company missed the order was zero. By using the CISR MAC code, Verizon limits the orders in the numerator of the PR-5 metrics to those in which the first Verizon-caused MAC code was for facilities reasons. For example, if Verizon caused a delay on the order for non-facilities reasons first, and then caused a later delay due to facilities reason, Verizon would not count the order in the numerator, since the CISR MAC code (which Verizon defines as the first Verizon MAC code) would not be CA or CF. Verizon’s approach is not unreasonable (since typically a facility delay would occur first), but Verizon should seek a clarification to the Guidelines to reflect its interpretation.

For PR-5-02 and PR-5-03, Verizon calculates the delay days for the numerator of the metrics as the number of days that it completes the order beyond any revised due date for Verizon reasons.

Verizon defines the product groups for PR-5 in the same way that it defines them for PR-1 through PR-4. As noted in PR-1, Verizon incorrectly excludes dispatched hot cut orders (IDLC hot cuts) from the UNE POTS loop product group, and incorrectly defines the UNE xDSL line sharing product group by including line splitting.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon excludes test orders, administrative orders, disconnect orders, and suspend for non-payment and associated restore orders. Verizon excludes affiliate data from CLEC results. For a discussion of these exclusions, refer to the introductory section of this chapter. The Guidelines require that Verizon report only completed orders in PR-5. As discussed in PR-2, Verizon accurately applies this exclusion.

For each of the PR-5 measures, Verizon uses a separate algorithm to calculate the result for each product group, and uses a separate algorithm for retail and wholesale results. Verizon uses the LSR Service Order Fact table data for almost all product group results except trunks, for which Verizon uses the ASR Service Order Fact table data. Verizon uses both ASR and LSR Service Order Fact table data to calculate results for UNE specials.

**PR-5-01 – Percentage Missed Appointment – Verizon – Facilities**

Verizon reports PR-5-01 results for the following products:

<b>Retail</b>	<b>Resale</b>	<b>UNE</b>	<b>Trunks</b>
POTS	POTS	POTS - Loop	CLEC Trunks
		POTS - Platform	
2-wire Digital Service	2-wire Digital Service	2-wire Digital Services	
2-wire xDSL Services	2-wire xDSL Services	2-wire xDSL Loops	
		2-wire xDSL Line Sharing	
Specials	Specials	Specials	
IXC FGD Trunks			

Liberty examined the algorithms that Verizon uses to calculate the PR-5-01 measures. The formula for the PR-5-01 metric set forth in the Guidelines is as follows:

- Numerator: The number of trunks/dispatched orders where the order completion date is greater than the order due date due to Verizon facility reasons for the product group
- Denominator: The number of trunks/orders completed for the product group.

To calculate the denominator for the measures, Verizon counts the number of completed service orders for the given product group. To calculate the numerator for PR-5-01, Verizon counts the number of service orders it identified in the denominator that were late for Verizon facility reasons.

Liberty recalculated the CLEC aggregate result for the UNE POTS loop product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>722</sup> For PR-5-01-3112, percentage missed appointments for Verizon facilities reasons, Liberty replicated Verizon’s denominator, as well as the overall result, 2.25 percent.<sup>723</sup> Liberty also recalculated Verizon retail result for the same product group, and replicated Verizon’s denominator, as well as the overall result, 0.69 percent.<sup>724</sup>

Verizon reported no results for its affiliates for the UNE POTS loop product, and Liberty confirmed that there was no relevant data for these affiliates.

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<sup>722</sup> Response to Data Request #582.

<sup>723</sup> Verizon reported a denominator of 89, and Liberty’s result was identical.

<sup>724</sup> Verizon reported a denominator of 23,754, and Liberty’s result was identical.

**PR-5-02 – Percentage Orders Held for Facilities > 15 Days and PR-5-03 – Percentage Orders Held for Facilities > 60 Days**

Verizon reports PR-5-02 and PR-5-03 results for the same product groups that it reports for PR-5-01.

Liberty examined the algorithms that Verizon uses to calculate the PR-5-02 and PR-5-03 measures. The formula for the PR-5-02 and PR-5-03 metrics set forth in the Guidelines is as follows:

- Numerator: The number of trunks/dispatched orders where the completion date is less the due date due is more than 15/60 days for Verizon facility reasons for the product group
- Denominator: The number of trunks/orders completed for the product group.

To calculate the denominator for the measures, Verizon counts the number completed service orders for the given product group. To calculate the numerator for PR-5-02, Verizon counts the number of service orders it identified in the denominator that it delayed more than 15 days past the original due date for Verizon facility reasons. To calculate the numerator for PR-5-03, Verizon counts the number of service orders it identified in the denominator that it delayed more than 60 days past the original due date for Verizon facility reasons.

Liberty recalculated the CLEC aggregate result for the resale POTS loop product group for February 2003 using the LSR Service Order Fact table that Verizon provided.<sup>725</sup> For PR-5-02-3112, percentage orders held for facilities over 15 days, Liberty replicated Verizon’s denominator, as well as the overall result, 0 percent.<sup>726</sup> Liberty also recalculated Verizon retail result for the same product group, and replicated Verizon’s denominator, as well as the overall result, 0.02 percent.<sup>727</sup>

Verizon reported no results for its affiliates for the UNE POTS loop product, and Liberty confirmed that there was no relevant data for these affiliates.

## **H. Findings and Recommendations for PR-4 and PR-5**

**Verizon has adopted conventions for calculating the PR-4 and PR-5 metrics that, while reasonable, are either not included or inconsistent with the Guidelines.**

Verizon had adopted certain conventions for calculating PR-4 and PR-5 results that are either not documented in the Guidelines or, in some cases, in conflict with the Guidelines, including:

- For PR-4, Verizon interprets the exclusion for orders with CLEC-caused delay in such a way that it excludes orders with a customer-caused delay only if Verizon

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<sup>725</sup> Response to Data Request #582.

<sup>726</sup> Verizon reported a denominator of 89, and Liberty’s result was identical.

<sup>727</sup> Verizon reported a denominator of 23,754, and Liberty’s result was identical.

misses any revised due date, and does not exclude such orders if it completes the order on time.

- For PR-4 and PR-5, Verizon does not consider the order missed for Verizon reasons unless there was at least one full day of company delay.
- For PR-4-07, Verizon does not score an order as missed for an early disconnect in cases where the CLEC requested the early disconnect.
- For PR-4-07, Verizon uses the date/time that the CLEC activates the number port instead of the frame due time for the trigger portion of the “met order” criteria.
- For PR-4-07, Verizon considers the disconnect portion of the “met order” criteria to be met if it completed the disconnect after the CLEC activated the port, instead of on or after the frame due time.
- Verizon does not exclude disconnects from PR-4-07, because the exclusion is contradictory (LNP-only orders involve disconnects); the exclusion for snip-and-restore orders is also not applicable for PR-4-07.
- Verizon interprets the exclusion for PR-4-04 and PR-4-14 (applicable only to 2-wire digital and 2-wire xDSL services) for orders missed due to facilities reasons as applicable only if the first Verizon-caused delay was for facilities reasons.
- Verizon limits the definition of orders with a Verizon-caused facility delay for the calculation of the PR-5 metrics to only those in which the first Verizon caused MAC code was for facility reasons.

Verizon should seek to have the Guidelines clarified with respect to these practices.

**Verizon does not properly define certain product groups in the PR-4 and PR-5 metrics.**

Verizon combines line splitting results with line sharing results in the UNE 2-wire xDSL line sharing product group for PR-4 and PR-5 (which is also does for PR-1 through PR-3), which does not conform to the Guidelines. Verizon incorrectly excludes UNE hot cut loops that are on IDLC systems and require a dispatch from the UNE POTS loop product group for PR-5 (which it also does for PR-1 and PR-2), which is not specified in the Guidelines.

For PR-4-11, which measures standard interval or “W” coded orders, Verizon includes “as is” resale migrations in the resale product groups regardless of whether the appointment interval was consistent with the standard for this product. Verizon thus does not properly define the resale product groups for this measure.

Verizon’s PR-4 algorithms contain errors that result in it improperly excluding certain orders from product group results. Verizon’s algorithm for the resale specials product groups for PR-4-01 includes resale “as is” migrations in the denominator but exclude them from the numerator. Verizon’s algorithm for the resale POTS product group for PR-4-02 excludes resale “as is” migrations from both the numerator and denominator. Verizon should correct its algorithms to properly include these orders in both the numerator and denominator of the metric calculations.



## **I. PR-6, Installation Quality**

### **1. Background**

The metrics within PR-6 report on installation quality, expressed as the percent of lines, circuits, or trunks installed where a trouble was reported and found in the Verizon network within 30 days (and within 7 days for POTS services) of order completion. The Guidelines specify that Verizon include troubles found in the drop wire, cable troubles, and central office troubles. There are three sub-metrics within PR-6: installation troubles reported within 30 days where Verizon found the trouble in the network (PR-6-01), installation troubles reported within 30 days where Verizon made its disposition either found ok/test ok or customer premise equipment (PR-6-03), and installation troubles reported within 7 days for POTS products only (PR-6-02). The Guidelines require Verizon to report results by distinct wholesale and retail product groups, dependent upon the sub-metric.

The exclusions that apply to PR-6 are:

- Subsequent reports on the same trouble (additional customer calls while the original trouble is still pending)
- Troubles closed due to customer action
- Troubles reported by Verizon employees in the course of performing preventative maintenance where no customer has reported a trouble
- Verizon affiliate data from CLEC results
- For metrics PR-6-01 and PR-6-02, customer premises equipment troubles and troubles reported but not found (test OK).

Verizon reports results by individual and aggregate CLECs, Verizon retail, and individual and aggregate Verizon affiliates. For Specials and Trunks product groups, Verizon reports on a statewide basis. For all other products, Verizon reports the results by each of the five geographic regions of New Jersey. For PR-6-03, there is no standard. For PR-6-01 and PR-6-02 UNE 2-wire xDSL loops, the standard is parity with retail POTS-Dispatch. For all other PR-6-01 and PR-6-02 measures, the standard is parity with Verizon retail. There are 11 reported results within PR-6 that are included in Verizon’s IP. For the period November 2001 through January 2003, nine of these measures resulted in penalty payments totaling \$268,288.<sup>728</sup>

### **2. Analysis and Evaluation**

The PR-6-01 and PR-6-02 measures focus on out-of-service and service affecting troubles found on the Verizon network within 30 days (PR-6-01) or within 7 days (PR-6-02) of service order completion. Verizon reports the PR-6-01 metric results for the following products:

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<sup>728</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

Retail	Resale	UNE	Trunks
POTS	POTS	POTS - Loop	CLEC Trunks
POTS - Dispatch		POTS - Platform	
2-wire Digital Services	2-wire Digital Services	2-wire Digital Services	
2-wire xDSL Services	2-wire xDSL Services	2-wire xDSL Loops	
Specials	Specials	2-wire xDSL Line Sharing	
IXC FGD Trunks		Specials	

The PR-6-02 metric product groups are retail POTS, resale POTS, UNE POTS loops, and UNE POTS platform. For determining records to be included in a reporting month, Verizon uses the date it cleared the trouble. The Guidelines do not specify how Verizon should determine the report month; Verizon should request that the Guidelines make this point clear.

The formula for PR-6-01 and PR-6-02 set forth in the Guidelines is as follows:

- Numerator: The number of central office and outside plant loop (disposition code 03, 04 and 05) troubles with installation activity within 30 days (for PR-6-01) or 7 days (for PR-6-02) of the trouble report
- Denominator: The total lines with installation activity within the report month.

To calculate the denominator of these measures, Verizon uses LSR Service Order Fact table data, and, for those products ordered via ASRs, ASR Service Order Fact table data. The Guidelines define the denominator as the sum of the lines that Verizon provisioned, and not the number of orders as with other PR measures. Therefore, to calculate the denominator, Verizon sums the lines number field from the LSR fact table or the order quantity field from the ASR fact table, as applicable, for each order.<sup>729</sup> These fields represent the quantity of lines that Verizon provisioned on a service order. The key variables that Verizon uses to arrive select orders included in the PR-6 measure include: state code, CLEC ID, original appointment code, service order type, global exclusion indicator, provider, service indicator, complexity indicator, product indicator, hot cut indicator, VADI indicator, RBC (residential/business/coin) indicator, status, and test account flag. Verizon excludes Verizon affiliate data from CLEC results.

Verizon does not include in the denominator for PR-6-01 and PR-6-02 lines from orders that Verizon initiated and that are customer affecting but not requested by the customer.<sup>730</sup> For a performance measure designed to report on the quality of installations requested by CLECs, this is an appropriate exclusion, but one that the Guidelines do not list. Verizon should request a change to the Guidelines to include this exclusion. Additionally, Verizon excludes orders that a test CLEC initiated. This is also a valid exclusion but one not listed in the Guidelines. Verizon should request a change to the Guidelines to incorporate this exclusion.

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<sup>729</sup> Response to Data Request #721.

<sup>730</sup> These orders contain a value of Y in the original appointment code field.

Verizon also excludes lines from orders associated with hot cut activity. Verizon provided no justification for making this exclusion, and it is not included in the Guidelines.

To determine the numerator for PR-6-01 and PR-6-02, Verizon uses the NMP Maintenance and Repair (M&R) Trouble Fact table. The source systems for the data contained in this table include LMOS, WFA, and NSDB, which is a sub-system of WFA. The numerator is the count of the trouble reports that qualify for the metric,<sup>731</sup> which Verizon determines by sorting on key variables found on the fact table, including CLEC ID, state code, install report 30-day indicator (for PR-6-01), install report 7-day indicator (for PR-6-02), repeat report 30-day indicator (for PR-6-01), repeat report 7-day indicator (for PR 6-02), test account flag, exclude-by-FST indicator, corporate telephone indicator, administrative repeat flag, disposition code, report category, product indicator, provider indicator, service level code, and RBC indicator.

NMP sets the install report 7- and 30-day flags in the M&R Trouble Fact table on the basis of a comparison of the service order completion date NMP receives from MISOS and the trouble ticket closure date NMP receives from LMOS or NSDB. A feed from LMOS or NSDB determine the “exclude-by-FST” indicator, which is set to “0” for inclusion in the measure or “1” for exclusion.<sup>732</sup> Verizon uses this field to exclude troubles that Verizon employees report while performing preventative maintenance. In addition, Verizon uses the report category field to include only those troubles reported to Verizon by the customer and exclude those troubles found from activities such as auto detection (*e.g.*, mechanized loop testing).<sup>733</sup> Verizon uses the administrative repeat flag to exclude subsequent trouble reports by identifying trouble tickets on the same line with identical close date and time as the original trouble ticket.<sup>734</sup> Consistent with the Guidelines, Verizon excludes troubles closed due to customer action by limiting the trouble tickets included in these measures to those with a disposition code of 03 (drop wire trouble), 04 (trouble found on the cable facilities), and 05 (trouble found within the central office).

Verizon makes exclusions to the numerator of PR-6-01 and PR-6-02 that the Guidelines do not list.<sup>735</sup> Verizon excludes repeat trouble reports on the same line, trouble reports on test accounts, and trouble reports on corporate telephone services. Performance measure MR-5 reports on repeat troubles, which are troubles associated with a prior maintenance job and not a subject of the PR-6 measures.<sup>736</sup> Troubles on test accounts and on corporate service lines are not appropriate for these wholesale performance measures. These exclusions are reasonable but Verizon should request a change to the Guidelines to include them.

Liberty recalculated the CLEC aggregate results for the UNE platform product group for both the PR-6-01 and PR-6-02 measures for February 2003 using the LSR Service Order Fact table Verizon provided.<sup>737</sup> For PR-6-01-3140, percent installation troubles reported within 30 days of installation, Liberty replicated Verizon’s denominator, as well as the overall result of 1.61

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<sup>731</sup> The total records resulting from a count of the trouble key field determine this quantity.

<sup>732</sup> Response to Data Request #724.

<sup>733</sup> Response to Data Request #726.

<sup>734</sup> Response to Data Request #725.

<sup>735</sup> Response to Data Request #586.

<sup>736</sup> Response to Data Request #723.

<sup>737</sup> Response to Data Request #582.

percent.<sup>738</sup> For PR-6-02-3140, percent installation troubles reported within 7 days of installation, Liberty replicated Verizon’s denominator, as well as the overall result of 0.78 percent.<sup>739</sup>

Liberty also recalculated the retail results for the same two measures. For PR-6-01-3140, Liberty replicated Verizon’s denominator, as well as the overall result of 3.88 percent.<sup>740</sup> For the PR-6-02-3140 measure, Liberty replicated Verizon’s denominator, as well as the overall result of 2.51 percent.<sup>741</sup>

The PR-6-03 metric reports on the percentage of lines/circuits/trunks installed where Verizon did not find a reported trouble in its network within 30 days of order completion. According to the Guidelines, the troubles included in the calculation of the PR-6-03 metric include disposition code 09 (Found OK/Test OK) and disposition code 12 (customer premises equipment troubles).

The algorithm that Verizon uses to calculate PR-6-03 is identical to the one it uses for PR-6-01, except for the trouble report disposition codes that Verizon includes in the numerator. To calculate PR-6-03, Verizon’s algorithm includes only those troubles that contain a disposition code of 07, 08, 09, 12, and 13. The Guidelines for PR-6-03 only list disposition codes 09 and 12. Verizon indicated that it also uses disposition codes 07, 08, and 13 to identify test OK and customer trouble situations. Appendix F to the Guidelines contains a list of disposition codes, but it does not list codes 07, 08, and 13. Assuming that Verizon’s characterization of these codes is correct, Verizon should request a change to both the definition of PR-6-03 and to the disposition codes in Appendix F to the Guidelines. The Guidelines also show troubles closed due to customer action as being a valid exclusion for the PR-6-03 sub-metric. Yet, by the very nature of this sub-metric these troubles are included in the calculation. Verizon should request a change to the Guidelines to reflect that this exclusion only applies to the PR-6-01 and PR-6-02 sub-metrics.

### **3. Findings and Recommendations**

#### **Verizon makes exclusions to the PR-6 metrics that the Guidelines do not list.**

Verizon’s practice of excluding loop hot cut orders from the PR-6 metrics is not in compliance with the Guidelines. Liberty recommends that Verizon change its practice to include the lines from these orders in the calculation of the PR-6 measures.

In addition, Verizon makes several exclusions to the PR-6 metrics that, while appropriate, the Guidelines do not list. Verizon should request a change to the Guidelines to explicitly incorporate these exclusions, including:

- Verizon-initiated orders that are customer-affecting but not customer-requested from the denominator of the measure
- Orders associated with a test CLEC from the denominator.
- Repeat trouble reports on the same line from the numerator

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<sup>738</sup> Verizon’s reported denominator of 97,394 lines was identical to Liberty’s result.

<sup>739</sup> The denominator for this metric was the same as for PR-6-01-3140.

<sup>740</sup> Verizon’s reported denominator of 268,095 lines was identical to Liberty’s result.

<sup>741</sup> The denominator for this metric was the same as for PR-6-01-3140.

- Trouble reports on test accounts from the numerator
- Trouble reports on corporate telephone services from the numerator.

**The Guidelines do not reflect Verizon’s practice for determining the reporting month for PR-6 performance measures.**

Verizon uses the date it cleared the trouble ticket as the basis for determining the reporting month. Verizon should request a clarification to the Guidelines to reflect this practice.

**Verizon includes disposition codes in the PR-6-03 measure that the Guidelines do not specify.**

The Guidelines specify that for PR-6-03 Verizon count troubles with disposition codes 09 (Found OK/Test OK) and 12 (customer premises equipment). However, Verizon also includes those with disposition codes 07, 08, and 13. Verizon maintains that these codes relate to found OK and customer problems. If so, Verizon should request changes to the Guidelines for PR-6-03 and to the disposition codes listed in Appendix F.

**The Guidelines reflect an exclusion that does not apply to the PR-6-03 sub-metric.**

The Guidelines specify troubles closed due to a customer action for all of the PR-6 metrics but this exclusion does not apply to the PR-6-03 sub-metric. Verizon should request a change to the Guidelines to reflect that this exclusion only applies to the PR-6-01 and PR-6-02 sub-metrics.

## **J. PR-7, Jeopardy Reports**

### **1. Background**

The PR-7 metric reports the percentage of completed or cancelled EEL orders that Verizon identified with a jeopardy condition. The exclusions that apply to PR-7 are:

- Verizon test orders
- Disconnect orders
- Verizon administrative orders
- Additional segments on an order
- Orders that are not completed or cancelled
- Verizon affiliate data from CLEC results.

Verizon reports these results on a statewide basis, by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. For the PR-7 metric, the standard is 95 percent on time in accordance with the schedule set forth in the Guidelines. The single sub-metric within PR-7 is not included in Verizon’s IP.

## 2. Analysis and Evaluation

The one product result within PR-7 reports the percentage of cancelled or completed EEL orders that had a jeopardy condition. The performance standards in the Guidelines indicate that the standard is 95 percent on time in accordance with a specified schedule for resale, UNE, and trunk products. This language in the Guidelines does not apply to PR-7, since it measures percentage of EEL orders with a jeopardy condition, rather than timeliness. Liberty therefore recommends that Verizon seek to have this extraneous language removed from the Guidelines. Similarly, Verizon should seek to have the Guidelines amended to include an appropriate percentage standard.<sup>742</sup>

Footnote 38 in the Guidelines states that if Verizon adopts a practice of giving jeopardy notices to Verizon retail customers who purchase retail services that are analogous to the services covered by the PR-7 metric, the standard would be “parity with Verizon retail.” Verizon indicated that it has no electronic jeopardy notification process in place for retail as it does for wholesale, and that the standard of retail parity would be inappropriate.<sup>743</sup>

CLECs order UNE EEL products via ASRs, and this product is a subset of UNE specials. Verizon uses the missed function code from WFA to determine if there was a jeopardy condition associated with the EEL order.<sup>744</sup>

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Verizon excludes test orders and administrative orders, and excludes affiliate data from CLEC results. For a discussion of these exclusions, refer to the introductory section of this chapter. The Guidelines also require that Verizon exclude any orders that are not completed or cancelled. In its metric algorithm, Verizon selects only those orders with a completed or cancelled status. The Guidelines require that Verizon exclude disconnect orders. Verizon selects only N and C orders, and excludes any disconnects on C orders. Liberty concluded that Verizon appropriately applies these exclusions.

The formula for PR-7-01 set forth in the Guidelines is as follows:

- Numerator: The number of EEL orders with a jeopardy status
- Denominator: The total EEL orders completed or cancelled.

To calculate the denominator for the measures, Verizon counts the number of EEL orders that were completed or cancelled during the reporting month. To calculate the numerator, Verizon counts the number of service orders identified in the denominator that had a jeopardy condition.

Liberty concluded that Verizon’s method for calculating PR-7 is appropriate.

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<sup>742</sup> In response to Data Request #240, Verizon indicated that the PR-7 metric has been removed from the New York Guidelines and from other states that follow the New York Guidelines

<sup>743</sup> Response to Data Request #677.

<sup>744</sup> Interview #54, April 24, 2003.

### **3. Findings and Recommendations**

#### **The Guidelines for PR-7 contain extraneous language and an inappropriate performance standard.**

The Guidelines refer to timeliness issues, and present a performance standard based on a percentage on time, which is clearly not relevant to the PR-7 measure. Liberty recommends that Verizon seek a clarification to the Guidelines to remove the timeliness-related language and to include a performance standard for this measure.

### **K. PR-8, Open Orders in a Hold Status**

#### **1. Background**

The two sub-metrics within PR-8 report the number of open orders that, at the close of the reporting period, have been in a hold status for more than 30 or 90 calendar days, expressed as a percentage of orders completed in the reporting period. Under the Guidelines, an open order is a valid order that Verizon has not yet completed or canceled. Open orders in a hold status include:

- Open orders that have passed the originally committed completion date due to Verizon reasons
- Open orders that have not been assigned a completion date due to Verizon reasons.

The Guidelines specify that Verizon should measure the 30- and 90-day intervals with the passed originally committed completion date as day 0. For orders that Verizon did not assign a completion date, Verizon should measure the interval from the application date.

The Guidelines require Verizon to report results by distinct wholesale and retail product groups, dependent upon the sub-metric. The exclusions that apply to PR-8 are:

- Verizon test orders
- Verizon administrative orders
- Orders that are not complete or cancelled
- Additional segments on orders
- Suspend for non-payment and associated restore orders
- Disconnect orders
- Orders that have passed the committed completion date, or whose completion has been delayed, due to CLEC or end user delay
- Orders that at the request of the CLEC or Verizon retail customers have not been assigned a completion date
- Verizon affiliate data from CLEC results.

Verizon reports results by individual and aggregate CLECs, Verizon retail, and individual and aggregate Verizon affiliates. For Specials, IOF, EEL, and Trunks product groups, Verizon reports on a statewide basis. For all other products, Verizon reports the results by each of the five geographic regions of New Jersey. For UNE 2-wire xDSL loop products, the standard is parity

with retail DS0 Specials, for UNE EELs, the standard is parity with retail DS1 Specials, and for UNE IOF, the standard is parity with retail DS3 Specials. The standard for all remaining PR-8 product measures is parity with Verizon retail. There are 12 reported results within PR-8-01 that are included in Verizon’s IP. Five of these results resulted in relatively small payments totaling \$6,444 during the period from November 2001 through January 2003.<sup>745</sup>

## 2. Analysis and Evaluation

The reporting period for PR-8 is the calendar month. The metrics report the number of open orders that have been in a hold status for more than 30 or 90 calendar days as a percentage of orders completed in the reporting period. The Guidelines define an open order as a valid order that has not been completed or cancelled. Open orders in a hold status include (1) open orders that have passed the originally committed completion date due to Verizon reasons, and (2) open orders that have not been assigned a completion date due to Verizon reasons. Measurement of the 30- and 90-day intervals for open orders that have passed the original completion date begins on the original committed completion date (*i.e.*, committed completion date = day zero). Measurement of the 30- and 90-day intervals for open orders that have not been assigned a completion date due to Verizon reasons begin with the application date (*i.e.*, application date = day zero). Verizon indicated that its practice is to assign a committed completion date to all confirmed orders.<sup>746</sup> If Verizon in fact always assigns a committed completion date, this second definition of open orders in a hold status does not occur.

The formula for PR-8-01 and PR-8-02 set forth in the Guidelines is as follows:

- Numerator: The number of open orders that at the close of the reporting period have been in a hold status for more than 30 days (for PR-8-01) or for more than 90 days (for PR-8-02)
- Denominator: The total number of orders completed in the reporting period.

To calculate this measure, Verizon uses data from the LSR Service Order Fact table and, for those products ordered with ASRs, data from the ASR Service Order Fact table. To determine the denominator, Verizon counts the orders that completed during the report period. The key variables used to arrive at the orders selected for inclusion in the PR-8 denominator are: global exclusion indicator, provider, service indicator, complexity indicator, VADI indicator, class of service (residential/business/coin) indicator, order status, C-order disconnect flag, service order type, original appointment code, test account flag, exclusion indicator, and PON. Verizon uses the order status field to identify the orders that have been completed or cancelled during the report period. It uses all of the other fields to narrow the scope of orders to be included in the denominator on the basis of specific criteria for the sub-metric being calculated (*e.g.*, the provider field identifies whether an order is associated with retail results, resale results, or UNE results) and to exclude orders according to the Guidelines.

To derive the numerator for PR-8, Verizon uses the order status field to identify all orders that are in a pending state (*i.e.*, orders that have not been completed or cancelled). After it identifies

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<sup>745</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>746</sup> Response to Data Request #241.



the open orders, the NMP system determines which orders have been open for greater than 30 days (PR8-01) or greater than 90 days (PR 8-02) by performing a calculation on each order that involves subtracting the original due date from the end date of the reporting month.

Verizon’s definitions for the key data fields it uses to calculate the metrics are consistent with the Guidelines.

Liberty recalculated the CLEC aggregate result for the UNE Special services product group for the PR-8-01 and PR-8-02 measures for February 2003 using the LSR Service Order Fact and ASR Service Order Fact tables that Verizon provided.<sup>747</sup> For PR-8-01-3200, percent open orders in a hold status >30 days, Liberty replicated Verizon’s denominator, as well as the overall result of 4.88 percent.<sup>748</sup> For PR-8-02-3200, percent open orders in a hold status >90 days, Liberty replicated Verizon’s overall result of 0 percent. Liberty also recalculated the retail results for the same two measures for the February 2003 data month. Liberty replicated Verizon’s denominator, as well as the overall result of 4.38 percent for the PR-8-01-3200 measure.<sup>749</sup> For the PR-8-02-3200 measures, Liberty replicated Verizon’s overall retail result of 3.35 percent.

Although Verizon stated that it is the company’s practice to assign commitment dates on all confirmed orders,<sup>750</sup> Liberty found while conducting its replication that Verizon excludes from the numerator any order with a null value in the original due date field. Without a valid date in this field, NMP cannot calculate how long that order has been open. This field should not contain a null value if Verizon is indeed assigning a commitment date to all confirmed orders. Verizon did not provide a reason for why there are orders without a valid due date even though it maintains that it always assigns one. Verizon should provide an explanation for why and the extent to which this situation occurs.

### 3. Findings and Recommendations

#### **Verizon excludes orders without a valid due date from the numerator of the PR-8 measures, even though it maintains that it always assigns a valid due date.**

Verizon excludes from PR-8 results orders that have a null value in the original due date field on the LSR Service Order Fact table in NMP. Verizon did not provide a reason for why there are orders without a valid due date, even though it maintains that it always assigns one. Verizon should provide an explanation for why and the extent to which this situation occurs.

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<sup>747</sup> Responses to Data Requests #582.

<sup>748</sup> Verizon reported a denominator of 82, and Liberty’s result was identical.

<sup>749</sup> Verizon reported a denominator of 3,674, and Liberty’s result was identical.

<sup>750</sup> Response to Data Request #241.

## **L. PR-9, Hot Cut Loops**

### **1. Background<sup>751</sup>**

The metrics within PR-9 report on Verizon’s performance on UNE hot cut loops with and without number portability. Verizon reports three sub-metrics within this measure, the percentage on-time performance, the average duration of service interruptions for hot cut installation troubles reported within seven days, and the percentage of orders supplemented or cancelled by the CLEC at Verizon’s request. The exclusions that apply to PR-9 are:

- Verizon test orders
- Verizon administrative orders
- Additional segments on orders
- If a CLEC cancels an order before the start of the hot cut window and Verizon performs the hot cut.

The Guidelines consider a hot cut to be complete when the following situation occurs:

- Work is done at the appointed frame due time as noted on the LSR or the work is done at a time mutually agreed upon by the CLEC
- The time is either within the prescribed cutover window in the C2C Guidelines, or it is a mutually accepted interval agreed upon by Verizon and the CLEC.

The Guidelines define the cut-over window, the amount of time from start to completion of physical cut-over of the lines, on the basis of the number of lines in the order as follows:

- 1 to 9 lines – 1 hour
- 10 to 49 lines – 2 hours
- 50 to 99 lines – 3 hours
- 100 to 199 lines – 4 hours
- 200 or more lines – 8 hours.

If an Integrated Digital Loop Carrier (IDLC) is involved in the hot cut, a four-hour window (8 a.m. to 12 Noon or 1 p.m. to 5 p.m.) applies to the start time.<sup>752</sup> This is only applicable if Verizon notified the CLEC by 2:30 p.m. Eastern time two days before the due date that the service was on IDLC.

Similarly, the Guidelines consider a hot cut to be “missed” when one of the following occurs:

- A premature disconnect is called into the 1-877-HotCut number
- Work was not done due to a Verizon reason (late turn-up, due date pushed out due to Verizon action).

For metric PR-9-09, percentage cancelled or supplemented orders, the exclusions are:

- Hot cuts where no dial tone was found during testing two days before the due date and the CLEC was notified of the problem

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<sup>751</sup> C2C Guidelines, April 2002; IP, October 2001; April 2002 (Revised).

<sup>752</sup> Verizon told Liberty that on an IDLC order, the loop is integrated with the switch, and Verizon has to first move the CLEC onto copper facilities or a universal DLC. This work is done out in the field and requires a dispatch.

- Hot cuts where a dial tone was found during testing two days before the due date and it was not present on the due date.

Verizon reports these results on a statewide basis and by each of the five geographic regions of New Jersey, as well as by individual and aggregate CLECs and by individual and aggregate Verizon affiliates.<sup>753</sup> For the PR-9-01 metric the standard is 95 percent completed within the allotted cutover window (based on the number of lines). For PR-9-08 and PR-9-09 there is no standard. Only PR-9-01 is relevant to Verizon’s IP. During the period from November 2001 through January 2003, Verizon paid less than \$500 related to this measure.<sup>754</sup>

Verizon does not calculate the PR-9-01 and PR-9-09 measures in NMP, but rather calculates them manually and sends the results to the NMP reporting system for publication. Effective with the February 2003 reporting month, Verizon calculates the PR-9-08 measure using data from the NMP maintenance and repair (M&R) domain of NMP.<sup>755</sup>

## **2. Analysis and Evaluation**

Verizon’s Regional CLEC Coordination Center (RCCC) in Hunt Valley, MD handles hot cut orders for New Jersey. The RCCC hot cut coordinators use a web-based system, the Wholesale Performance Tracking System (WPTS), to process and record information on hot cut orders. WPTS is an overlay to the Work Force Administration and Control (WFA/C) system, and is a tool for tracking orders, for collecting data on orders, and for communicating interactively with the CLEC and Verizon frame technicians during the hot cut process. Information from WFA/C routinely updates WPTS on hot cut orders, and WFA/C records on the OSS log any information entered into WPTS. Verizon handles all hot cut orders through the WFA/C and WPTS systems.

Typically, the CLEC specifies the frame due time on the LSR. Verizon indicated that it was not its policy to solicit alternative frame due times (although this policy is not documented in any written procedures).<sup>756</sup> Under its business process, Verizon notifies the CLEC prior to the cut that Verizon is ready to proceed at the appointed frame due time, and Verizon verifies that the CLEC is prepared to continue. When the cut is complete, Verizon notifies the CLEC, either via phone or electronically through WPTS, that the hot cut is complete. The RCCC coordinator records the date and time of the CLEC’s approval to continue, of the completion of the cut by the frame technician, and of the turn-up of the completed order to the CLEC.

The coordinator records information on the order on a WPTS screen during the hot cut session. If the CLEC is interactive with WPTS, it can simply click buttons on the screen to indicate approval to continue, acceptance of the order, etc., and can receive notification that the cut is completed electronically. If the CLEC is not interactive on WPTS, a RCCC coordinator has to “act for” the CLEC on the WPTS system. After he gets a confirmation over the phone, the

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<sup>753</sup> The five geographic divisions for the state of New Jersey are: Southern, Eastern Shore, Raritan, Suburban and Hudson-Bergen (Response to Data Request #13).

<sup>754</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>755</sup> Response to Data Request #729.

<sup>756</sup> Response to Data Request #199.

coordinator can click the appropriate CLEC response button, which then prompts him for a comment (such as the name of the CLEC person contacted regarding the turn-up). The Verizon frame technician working the order is also usually interactive on WPTS, and clicks a button to indicate that the cut was completed (although in some cases the RCCC coordinator has to get the information over the phone and act as the frame technician by clicking the WPTS button regarding completion). The WPTS system automatically provides the time stamping for each step in the process, and updates this information to the WFA/C OSS log.

If Verizon completed the order outside the cut-over window (defined as the interval from frame due time to turn-up time<sup>757</sup>), the WPTS system prompts the coordinator for a reason why the order was missed. Verizon uses a three-character missed function code (MFC) to indicate the reason for any missed order. The first letter of the MFC indicates the party responsible for the delay. Verizon uses a “C” to indicate the CLEC, and a variety of other letters to indicate Verizon organizations or functions (such as the central office or complex design center). The last two characters of the MFC are numeric and indicate the reason for delay (such as defective facilities/translocations).<sup>758</sup> If Verizon misses the cut-over window, the RCCC coordinator selects an MFC from a list of possible codes provided in a drop down menu in WPTS.<sup>759</sup>

In some cases, the RCCC coordinators use an MFC of “O01” to indicate that the order was not actually missed. Verizon explained that there are instances in which the RCCC coordinator gets behind in entering the data on an order (such as when the WPTS system is down and the coordinator is working in WFA/C or on paper) such that the coordinator could not get the completion time-stamped promptly by WPTS. There are also instances where the CLEC may request to push the starting time out by an hour or more. In these cases, Verizon does not require the CLEC to go back and supplement the order, but simply tries to accommodate the CLEC. The order may show as having completed late on the basis of the original frame due time. If RCCC coordinators use the O01 MFC code, however, Verizon requires them to enter ample explanatory comments in the WPTS system.

The hot cut metrics reporting team, also located in Hunt Valley, is responsible for the calculation of the PR-9-01 and PR-9-09 metrics. The metrics team calculates the results manually, and reviews every completed order to determine whether it was met or missed. Each day, the metric specialist executes a query through WPTS for hot cut orders due the next day. The metrics specialist copies data on these pending orders into an Excel spreadsheet. The specialist eliminates from the spreadsheet some data fields from the WPTS query (such as whether the due date has changed), and adds other fields, such as met code, district, and comments. The specialist executes a macro in the Excel spreadsheet that converts the wire center field from the WPTS/WFA data into the “district” field based on a lookup table (Verizon uses the district field to separate results into the five geographic areas in New Jersey). The metric specialist also

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<sup>757</sup> Verizon is not doing acceptance testing; Verizon uses the turn-up time as the end point for calculating whether the order was completed within the cut-over window.

<sup>758</sup> Response to Data Request #189.

<sup>759</sup> Response to Data Request #193 (revised). During the life of an order, Verizon also records jeopardy (JEP) codes in the OSS Log. The JEP codes allow Verizon to determine whether a given step in the process (such as a late LSR) was ultimately responsible for missing the due date, but Verizon does not use JEP codes in calculation of the metric.

translates the information in the ISLC field to a Y or N to indicate if the order is IDLC.<sup>760</sup> The metrics team accumulates these daily WPTS queries to form an Order Detail file for the monthly metrics calculation. Verizon then uses this file to record further information on the orders it completes them.

Each day, the metrics specialist executes another query from WPTS for information on all orders that Verizon completed the prior day. The output from the query includes a link to the OSS Log for each order. The metrics team then does a detailed review of each completed order, and enters information as appropriate on the pending order Excel spreadsheet. The metrics specialists review the OSS Log and determine the turn-up date and time (the data were not included as part of the initial completed order query). The specialists review the log to determine the appropriate MFC code consistent with the Guidelines, and add comments on the order as required. The MFC field in the Order Detail file represents the one assigned by the metrics team, and the “MFC Used” field represents the one assigned initially by the coordinator. The MFC code assigned by the metrics team is the one used for the purposes of the metric calculation. The metrics team has the “last say” on the MFC code, and if it changes the code, the RCCC coordinators are required to go back and change the code in WFA/C.<sup>761</sup> After updating the information on each order in the Order Detail file, the metrics specialist scores the order as met or missed. If there is no MFC, or if the order was late for CLEC reasons, Verizon enters a Y in the “Met” field; otherwise, Verizon scores the order as an N.

Verizon uses the review by the metrics team of the hot cut orders, and the MFC codes specifically, as quality control, although it does not have detailed documentation related to this process.<sup>762</sup> Proper interpretation of the OSS Log is dependent upon the level of experience of the specialists, rather than on written documentation. Verizon’s training documentation for metrics specialists includes examples of OSS Log entries that are rather confusing, and in some cases inaccurate. Verizon indicated that it would be updating and correcting this documentation. As a further quality control measure, the RCCC supervisors also do four audits per month on their coordinators; one aspect of those audits pertains to the use of MFC codes.<sup>763</sup> The RCCC manager also samples 10 orders per month (from all Mid-Atlantic state orders worked at the center) to determine the accuracy of scoring. The metrics team also issues a daily miss report, which indicates the MFC code assigned by the metrics team and the one used by the coordinator; Verizon uses this report as a training tool for coordinators to highlight cases where the assignment of the MFC code differed. Verizon said that it was rare for the metrics team to change a miss code from a customer to a Verizon reason, or vice versa; typically, the team would change the department or group within Verizon to which it assigned the miss (*i.e.*, the first character of the MFC code).

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<sup>760</sup> If the WFA/C field indicates that all or some lines are IDLC, then the field is changed to Y, but if the designation is all copper or universal, then the field is changed to an N.

<sup>761</sup> Response to Data Request #191.

<sup>762</sup> Response to Data Request #192.

<sup>763</sup> Response to Data Request #191 (original and supplemental).

### PR-9-01- % On Time Performance – Hot Cut

The PR-9-01 metric measures the percentage of hot cut orders that Verizon completed on time. The formula for the PR-9-01 metric set forth in the Guidelines is as follows:

- Numerator: The number of coordinated loop hot cuts, with or without number portability, completed within the commitment window (as scheduled on the order) on the due date
- Denominator: The total number of hot cut coordinated loop orders completed.

The Guidelines definition for the sub-metric states that Verizon should consider as not completed within the cut-over window orders disconnected early and orders cancelled by the CLEC during or after a defective cut.

Verizon uses all hot cut orders completed in the month as the denominator for the measure. Specifically, the metrics team counts all orders that have a Y or N in the Met field. For example, if the CLEC has supplemented an order to move the due date out, the order would appear twice in the Order Detail file (since it would be “due” twice). However, the first instance would have a blank in the Met field, and not be included in the measure. If any version of the order had been missed due to Verizon reasons (such as if the CLEC was not ready, then Verizon was not ready at later rescheduled due date), the order is scored a miss. The metrics team verifies using a separate query of WPTS that all completed orders have been included in the Order Detail file, and runs a macro at month-end to ensure that it does not use duplicate order numbers in the calculation. To calculate the numerator, the metrics specialist counts the number of completed orders that have a “Y” in the Met field.

Verizon interprets the language in the sub-metric definition about “disconnected early” to mean an early cut. When the metrics specialist looks at the OSS Log, he can see when the frame technician called back to indicate that the work was done; therefore, the specialist can tell if the loop was cut early. Verizon considers early cuts as misses for the metric, even if the order completed on time. One exception, set out in the training documentation for the RCCC metrics specialist, deals with IDLC orders. If a dispatch technician arrives earlier than the beginning of the four-hour window, the RCCC coordinator contacts the CLEC to advise that the dispatch technician is on site. The coordinator is not supposed to solicit an early hot cut. However, if the CLEC asks to proceed with the hot cut early, the coordinator may proceed with the hot cut. The documentation states that it is important for the RCCC coordinator to note in the OSS LOG that the CLEC requested Verizon to proceed with the cut, since, with this documentation, the cut would not be considered a Verizon miss as long, as it was completed by the end of the four-hour window.<sup>764</sup>

According to Verizon, the other language in the sub-metric definition about the CLEC canceling the order after a defective cut refers to a situation that cannot happen. The CLEC cannot cancel the order after the cut has started, since it has to give approval to proceed in the first place. Therefore, Verizon does not recognize this situation in its record keeping.

The C2C Guidelines also specify that premature disconnects called into the 1-877-HOTCUTS number are to be considered as missed orders. In the event of a call to the 1-877 number, the

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<sup>764</sup> Response to Data Request #193 (revised).

RCCC receives a call and takes over fixing the problem; the coordinator is required to enter an MFC code of “D12” to represent a premature disconnect. Thus, when the order is actually completed, the metrics specialists will be able to determine that there was a premature disconnect, even though the order may have actually ultimately completed on time; in this case, the order would scored as a miss. Verizon’s process for scoring any order cut early as a miss would also capture any premature disconnect.

Liberty reviewed how Verizon makes the exclusions specified in the Guidelines. Verizon excludes test CLEC orders by the daily query done in WPTS on the basis of a look-up table of test CLEC IDs. Verizon excludes administrative orders (which are a different request type than hot cut orders) through the WPTS queries, which look only for hot cut orders. As noted in the introduction section, the exclusion for additional segments on an order does not apply in New Jersey.

The Guidelines also specify that Verizon should exclude situations where a CLEC cancels an order before the start of a hot cut window and Verizon performs the hot cut. Verizon said that it reports completed orders, and, if the CLEC cancels the order, Verizon would not complete and thus not report the order.<sup>765</sup> Verizon explained that the “Verizon performs the hot cut” portion of the exclusion was a scenario that would not happen, because the cut is coordinated and it would not have continued without approval by the CLEC.

Liberty found that Verizon’s definitions for key data fields were consistent with the Guidelines, and that Verizon’s process for interpreting OSS Log information to determine whether it met or missed an order was acceptable, although Verizon had not adequately documented the process. Liberty found that Verizon had adequate controls in place to verify that all orders were included in the metric for a reporting month. Liberty found that Verizon was properly determining and excluding test and administrative orders, and orders cancelled by the CLEC prior to the start of the hot cut.

Liberty obtained the Order Detail Excel file containing source data for hot cuts completed during the month of February 2003 as well as the CLEC-specific results for that month.<sup>766</sup> Liberty then established how Verizon calculated its CLEC aggregate result. Of the 141 orders in the Order Detail file, Verizon excluded 7 from the denominator because it either cancelled the order or completed the order after receiving a supplement; Verizon only included completed orders in the denominator of the measure. Verizon reflected the number of met orders (131 of 134 completed orders) in the numerator.

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<sup>765</sup> The WPTS queries do not extract cancelled orders from WFA/C. However orders that are ultimately cancelled may get picked up in the daily query for due orders, particularly if the CLEC cancels an order close to the frame due time. In these cases, the metric team leaves the “Met” field blank, and these orders are not counted in the numerator or denominator.

<sup>766</sup> Responses to Data Requests #393 and #396. The metrics team sends calculated results each month to the NMP reporting system. It also provides a version of the Order Detail file (with certain excess fields removed) to NMP, which is then made available to CLECs (File Appendix 41 in the MBR) to recalculate their results. The description of the file in the MBR contained some errors; Verizon made necessary corrections and provided an updated version of the MBR to Liberty in response to Data Request #394.

Liberty compared the frame due time to the turn up time for all completed orders to determine if the metrics team had assigned the proper Met code. In several cases, Liberty had to request and review the OSS Logs associated with those orders to establish that Verizon assigned the code correctly. For three orders, for example, the interval between frame due time and turn-up time was longer than the allowed interval, yet Verizon had scored the order as met. Liberty was able to verify from the OSS Logs that there had been a CLEC delay for lack of dial tone, and that Verizon completed the hot cuts within the allotted interval once CLEC restored dial tone.<sup>767</sup> Liberty also reviewed OSS Logs for twelve orders that had no (or a suspect) frame due time as shown in the Order Detail file, and was able to substantiate that the orders had been scored correctly.<sup>768</sup> Liberty has found that the metrics team has an adequate, albeit for the most part manual, process in place to ensure that it scores orders correctly.

Liberty recalculated the CLEC aggregate results in total and by geographic region, and the CLEC-specific results in total and by geographic region (there were no orders by Verizon affiliates). Liberty’s results were the same as those reported by Verizon. Liberty concluded that Verizon’s method for calculating the PR-9-01 metric is consistent with the Guidelines, and that its reported results are accurate.

Liberty requested the daily missed orders reports prepared by the metrics team for the last week of February.<sup>769</sup> There was only one missed order for that week, and the metrics team had assigned an MFC code indicating the order was cut early, and therefore treated as a miss; the RCCC coordinator indicated that the order was met, using no MFC. Liberty reviewed the Order Detail file for other instances of missed orders, and found that for the two other missed orders for the month, the metrics team agreed with the MFC code assigned by the RCCC coordinators. Liberty concluded that the review process done by the metrics specialists provides adequate assurance that Verizon appropriately identifies missed orders.

As a further check on the PR-9-01 results, Liberty reviewed NMP ordering data to determine if Verizon had properly included all ordered hot cuts. Liberty found that three hot cuts that Verizon included in results had different request types (“AB” rather than “BB”) in the ordering data. The Guidelines define a coordinated cut-over as a live manual transfer of a Verizon end user to a CLEC.<sup>770</sup> Verizon subsequently confirmed that it had incorrectly included three CLEC-to-CLEC hot cuts in the results, which is inconsistent with the Guidelines.<sup>771</sup> Verizon indicated that the RCCC had processed these orders in WPTS before it had assigned a request type to them. Verizon indicated that it was investigating ways to prevent such errors in the future. Verizon’s

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<sup>767</sup> Response to Data Request #472. For another order, the metrics specialist had typed an incorrect turn-up time into the Order Detail file, but Liberty was able to substantiate the correct time from the OSS Log.

<sup>768</sup> Responses to Data Requests #469 and #470. Verizon indicated that in some cases, WPTS picked up the due time for the associated disconnect order (23:59) rather than the one on the hot cut order, and the metrics team had to refer to the OSS Log for the correct time. For other orders, the frame due time was missing in the Order Detail file. Verizon explained that sometimes the person taking the order information will not put the frame due time in the appropriate field, and instead add it as a remark in the log, so the time will not be picked up as part of the WPTS query. The metrics team refers back to the OSS Log for such orders.

<sup>769</sup> Response to Data Request #395.

<sup>770</sup> Guidelines Glossary.

<sup>771</sup> Response to Data Request #825.



reported result of 97.76 percent, based on 134 completed hot cuts, should therefore be 97.71 percent, based on 131 completed hot cuts.

Liberty also found that there were over 40 hot cut requests in the ordering data that had the same request type (“BB”) as the hot cuts that Verizon included in the results. Liberty asked Verizon to review these orders to determine if they were all CLEC-to-CLEC hot cuts. Verizon confirmed that the orders were CLEC migrations from UNE platform to UNE loops.<sup>772</sup> Liberty concluded that Verizon properly excluded these orders from reported results.

### **PR-9-08 – Average Duration of Service Interruption**

Liberty did not conduct a detailed analysis of this measure, since it is not included in Verizon’s IP, CLECs did not express any concerns, and there are no standards associated with this measure. Liberty did, however, examine the method and algorithm that Verizon uses to calculate the measure.

The PR-9-08 metric is a hybrid measure, since it requires data from both the M&R and PR domains. This metric reports the average duration of service outages that customers experience on lines that had been involved in a hot cut within the past seven days. In the definition for the numerator and denominator of the measure, the Guidelines indicate that only those troubles with a disposition code of 03 (drop wire trouble), 04 (cable trouble), and 05 (central office trouble) should be included in the result. For clarity purposes, Liberty recommends that Verizon seek a clarification to the Guidelines to list trouble types, *i.e.*, CLEC or customer premises equipment troubles, that are specifically excluded from the metric.

The Guidelines description for PR-9-08 refers to “troubles called into the 1-877-HOTCUTS line (installation troubles).” CLECs report troubles on hot cuts by calling the 1-877-HOTCUTS line, by using the GUI-based RETAS system, and by calling the normal CLEC trouble-reporting telephone number.<sup>773</sup> Verizon includes in its result all troubles associated with hot cuts completed within the past seven days, regardless of how the CLEC reported the trouble. Verizon’s approach is reasonable, but recommends that Verizon seek a clarification to the Guidelines to remove the exclusive reference to the 1-877-HOTCUTS line.

Verizon includes only out-of-service troubles and excludes service-affecting troubles in its calculation of this metric.<sup>774</sup> Hot cuts can result in service-affecting problems. For example, a customer could experience noise on the line due to a change in facilities, such as when the CLEC is moved from an IDLC system to either a copper pair or a universal digital loop carrier system. The Guidelines state that Verizon should base the measure on troubles, and does not further qualify these as only out-of-service troubles. Liberty therefore concludes that Verizon’s method for calculating the PR-9-08 metric is not consistent with the Guidelines. Liberty recommends that Verizon change its method for calculating this metric to include all relevant out-of-service and service-affecting trouble reports.

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<sup>772</sup> Responses to Data Requests #826 and #899.

<sup>773</sup> Responses to Data Requests #195 and #431.

<sup>774</sup> Response to Data Request #433.

The Guidelines for the PR-9-08 metric define the denominator as the number of “hot cut installation troubles reported within seven (7) days.” Verizon calculates this measure based on all completed troubles that had service order activity associated with a hot cut within the prior 7 days.<sup>775</sup> Verizon must wait until it completes the trouble report to allow it to determine the disposition code associated with the trouble clearance. Because Verizon often will not complete troubles on the same day reported, Verizon needs to clarify the Guidelines with respect to the basis for the reporting period. For example, if a CLEC reported a trouble on a line associated with a completed hot cut near the end of the month, but Verizon does not clear the trouble until the beginning of the next month, Verizon would count this trouble in the results of the month that it cleared the trouble, not the month that the CLEC reported the trouble, as implied by the Guidelines. Liberty recommends that Verizon seek to clarify the Guidelines on how these troubles that overlap data months should be treated in the metric.

Verizon sends to its NMP system trouble tickets data from the Network Operations Results Database (NORD) system and populates an indicator flag with an I7 when it finds a completed service order with the same circuit ID or telephone number within the prior seven calendar days.<sup>776</sup> Verizon sends a file containing information on hot cuts completed during the month (similar in form to the Order Detail file discussed in PR-9-01) to NMP. Verizon executes a procedure in NMP that attempts to match the circuit IDs associated with completed hot cuts with those in the M&R trouble ticket data in the NMP warehouse. If there is a match, NMP populates the hot cut indicator field in the M&R data with a Y.<sup>777</sup> Verizon includes all trouble reports with both the I7 in the indicator flag and a Y in the hot cut indicator in the denominator of the measure.

The formula for the PR-9-08 metric set forth in the Guidelines is as follows:

- Numerator: The sum of the trouble clear date and time minus the trouble receipt date and time for central office and loop troubles (disposition codes 03, 04, and 05) for hot cut installation troubles reported within 7 days
- Denominator: The number of central office and loop troubles (disposition codes 03, 04, and 05) for hot cut installation troubles reported within 7 days.

To calculate the denominator for the measure, Verizon counts the number of out-of-service trouble tickets with disposition codes of 03, 04, and 05 that have the I7 and hot indicators associated with them and which Verizon completed within the calendar month.<sup>778</sup> To calculate the numerator, Verizon sums the interval between the trouble clear date/time and the trouble receipt date/time for all the trouble reports identified in the denominator.

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<sup>775</sup> Response to Data Request #431.

<sup>776</sup> Response to Data Request #434.

<sup>777</sup> Response to Data Request #694.

<sup>778</sup> Response to Data Request #195.

### **PR-9-09 - % Supplemented or Cancelled Orders at Verizon Request**

The PR-9-09 metric measures the percentage of hot cut orders that have been supplemented or cancelled at Verizon’s request. Verizon said that it has a process in place such that it does not ask CLECS to supplement or cancel orders; Verizon, however, has no written documentation of this policy.<sup>779</sup> Verizon also indicated that other states have eliminated this metric.

The Guidelines list as exclusions for PR-9-09: (1) orders where no dial tone was found on the DD-2 test and the CLEC was notified of the problem, and (2) hot cuts where dial tone was found on the DD-2 test and was not present on the due date. Verizon told Liberty that it considers these exclusions to be situations where the CLEC would be required to supplement the order to extend the due date, and as such does not include these instances in the measure.

Although Verizon does not currently request CLECs to supplement or cancel orders, it does make an allowance for such situations in the data captured for hot cut orders. If such a situation were to occur, Verizon’s metrics specialists would enter a notation of “VZ REQUESTED CANCEL” (which reportedly captures both supplement and cancel requests) into the comments field in the Order Detail file upon review of the OSS log.

The hot cut metrics team in Hunt Valley calculates the PR-9-09 metric, using the same Order Detail file prepared for the calculation of the PR-9-01 metric. The formula for this metric set forth in the Guidelines is as follows:

- Numerator: The number of hot cut orders cancelled or supplemented at Verizon request
- Denominator: The total number of hot cut orders completed plus cancelled orders.

Verizon uses only the number of completed orders in the month as the denominator, because it has no orders cancelled at Verizon’s request; Verizon does not interpret the Guidelines to mean all cancelled orders (*i.e.*, including those cancelled by the CLEC). Verizon calculates the numerator, as indicated in the MBR algorithm, as the number of order in which “VZ REQUESTED CANCEL” appears in the comment field.

Verizon has been reporting 0 percent for this metric over the last four months (November 2002 through February 2003). Liberty reviewed the Order Detail file for the month of February and found no orders with the “VZ REQUESTED CANCEL” notation. Liberty found that Verizon’s approach to calculating the PR-9-09 metric is reasonable, and that Verizon’s reported results are accurate.

## **3. Findings and Recommendations**

### **Verizon’s documentation related to the PR-9-01 metric is out-of-date.**

Liberty found that Verizon’s documentation for both the business process associated with this metric and for the calculation of this measure is out-of-date and incomplete. Liberty recommends

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<sup>779</sup> Response to Data Request #198.

that Verizon update its documentation on the calculation of the PR-9-01 metric, and update its training documentation for metrics specialists. Specifically, Verizon should document guidelines for the metric specialist’s role of interpreting the OSS Log information, assigning a MFC code, and scoring the order as ultimately met or missed.

**Verizon incorrectly included CLEC-to-CLEC hot cuts in the February 2003 PR-9-01 results.**

Liberty found that Verizon included some CLEC-to-CLEC hot cuts in its February reported results, which is inconsistent with the Guidelines. Verizon attributed the mistake to human error. Liberty recommends that Verizon implement procedures to minimize the likelihood of such errors in the future.

**Verizon excludes service-affecting troubles from the PR-9-08 metric result, which is inconsistent with the Guidelines.**

Liberty found that Verizon includes only out-of-service troubles in its calculation of this measure. Service-affecting troubles can result from hot cut activity and therefore should be included in the PR-9-08 results. Liberty recommends that Verizon change its method for calculating the metric to include all troubles reported within seven days of a hot cut.

**Verizon’s method for basing the reporting month on completed trouble reports for the PR-9-08 metric is inconsistent with the Guidelines.**

Verizon uses the trouble completion date rather than the trouble report date to select the troubles that it includes in the PR-9-08 metric for a given reporting month. This approach is not consistent with the Guidelines. Liberty recommends that Verizon seek to clarify the Guidelines regarding how it treats trouble reports that overlap data months.

**Portions of Verizon’s method for calculating the PR-9-08 measure are reasonable, but not consistent with the Guidelines.**

Liberty found instances where Verizon’s process for calculating the PR-9-08 measure is reasonable, but not well defined in the Guidelines. Liberty recommends that Verizon seek clarification to the Guidelines in the following areas:

- Remove the reference in the Guidelines of “troubles called into the 1-877-HOTCUTS line” as these are not the only troubles included in this measure.
- Include as exclusions troubles found on the customer premises equipment and troubles found on the CLEC’s network.

## **VI. Maintenance and Repair (M&R) Performance Measures**

### **A. General Background and Summary of Findings**

The Telecommunications Act of 1996 imposed upon Verizon the obligation to provide non-discriminatory maintenance and repair service for its CLEC customers. The M&R domain measures whether Verizon is providing these services to the CLECs with quality equivalent to that provided to its own retail customers. The M&R metrics measure discrete components of Verizon's M&R services from the initiation of a trouble report to its closing in Verizon's systems. The M&R domain consists of 5 metrics, 23 sub-metrics, and 149 results reported on a product basis.

Verizon divided its reporting in this domain into the following metrics: (a) timeliness of responding to requests, (b) trouble report rate, (c) missed repair appointments, (d) trouble duration intervals, and (e) repeat report rates.<sup>780</sup> For four of the five basic measures (MR-2 through MR-5), Verizon collects M&R data using the Work Force Administration (WFA) and Line Maintenance Operating Systems (LMOS). The M&R data are stored in the Network Operations Results Database (NORD) and Network Analysis and Measurement System (NAMS) systems for retrieval and use in the preparation of metrics.<sup>781</sup> During the latter stages of the audit, Verizon moved the data storage, calculation, and reporting of the M&R metrics into the NMP.

Verizon uses two systems to interface with the CLECs for M&R. These systems are Electronic Bonding (EBTA) and Web Graphical User Interface (Web GUI). The purpose of these systems is to provide an efficient way to transmit information between Verizon's M&R systems and organization and its CLEC customers. MR-1 measures how responsive Verizon is to M&R-related queries from the CLECs. During the audit period, four CLECs primarily used EBTA, while others used Web GUI.<sup>782</sup> Verizon moved the storage, calculation, and reporting of the M&R metrics to NMP effective with the November 2002 data month performance report.<sup>783</sup>

The M&R domain is an integral part of Verizon-NJ's IP. The Board incorporated 78 of the M&R metrics into the IP. For the period November 2001 through January 2003, the M&R metrics accounted for \$6,092,751 of incentive plan payments, 33 percent of the total.<sup>784</sup>

Liberty found that Verizon is over-reporting the retail response times and under-reporting wholesale response times for some of the MR-1 sub-metrics. Verizon's methods for MR-1 are not consistent with the Guidelines. Liberty also found that Verizon's methods for the MR-2 through MR-5 measures produced accurate results, but that Verizon should improve its quality controls over the input data used for these measures.

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<sup>780</sup> C2C Guidelines, April 2002, IP, October 2001, April 2002 (Revised), and response to Data Request #16.

<sup>781</sup> Interview #4, February 10, 2003.

<sup>782</sup> Interview #36, April 4, 2003.

<sup>783</sup> Response to Data Request #139.

<sup>784</sup> Incentive payment reports provided to Liberty by the Board's Staff.

## **B. MR-1, Response Time OSS Maintenance Interface**

### **1. Background<sup>785</sup>**

The Telecommunications Act of 1996 requires Verizon to provide Operation Support System (OSS) services to its competitors that are comparable to the services it provides to its own retail operations. The purpose of MR-1 is to provide a quantitative comparison of the performance of Verizon’s OSS retail services with that provided to its wholesale operations related to the response time of the maintenance interfaces.

Verizon provides two systems for the interface between the CLEC and its OSS, EBTA and Web GUI. EBTA is an application-to-application electronic interface based on American National Standards Institute standards.<sup>786</sup> The system contains an application for measuring the response time data for the MR-1 metric. The EBTA system does not contain a trouble history query. Verizon has four CLECs using the EBTA system for the interface. Accessed through Web GUI, the other system is the Repair and Trouble Administration System (RETAS), which provides numerous capabilities including create, status, modify, close/cancel, test, and trouble history for circuits. The Create capability provides the CLEC the ability to originate trouble tickets. The Status function provides the CLEC the ability to check on the status of trouble tickets that it submitted. The Modify permits the CLEC to change or modify a trouble ticket that it submitted. The Close/Cancellation capability provides the CLEC the ability to close or cancel a trouble ticket that is active. Finally, trouble History provides the CLEC the capability to access the trouble history of a circuit. In each case, RETAS is able to measure the system response time for MR-1 metric purposes.<sup>787</sup> Other than the four using EBTA, CLECs use Web GUI to access RETAS.

Verizon’s retail trouble reporting system is the Common Agent Desktop (CAD). For MR-1 purposes, CAD provides the retail response time data to NMP for calculating and reporting of the retail MR-1 metric results.

The sub-metrics within MR-1 report OSS maintenance average response time for Create Trouble, Status Trouble, Modify Trouble, Close/Cancellation of Trouble, Trouble History, and Test Trouble (POTS only). The metric is supposed to report the time in seconds that elapses from a carrier’s initiation of a query request to the carrier’s receipt of a response. Verizon reports the sub-metrics separately for Web GUI and EBTA. Verizon reports these results only on a statewide basis for Verizon retail, CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific.

MR-1 has distinct standards for Web GUI and EBTA. The Web GUI standard is parity with Verizon retail measurement plus not more than 7 seconds, while the EBTA standard is parity with Verizon retail plus not more than 4 seconds. The additional time is to offset the inefficiencies associated with CLECs accessing Verizon’s M&R OSS compared to Verizon’s

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<sup>785</sup> Response to Data Request #17, and C2C Guidelines, April 2002.

<sup>786</sup> Interview #36, April 4, 2003, handout materials, Appendix 1a.

<sup>787</sup> Interview #36, April 4, 2003, handout materials, Appendix 1a.

own internal capabilities. MR-1-05-6060 measures the response time to provide trouble report history in an EBTA environment. Because this function does not exist in EBTA, Verizon reports this metric as “No Existing Functionality” in performance reports.<sup>788</sup>

The exclusions that apply to all of the MR-1 sub-metrics are as follows:

- CLEC complex Create Trouble transactions that cannot be performed by Verizon Retail
- CLEC Aggregate excludes Verizon Affiliates.<sup>789</sup>

For the period November 2001 through January 2003, MR-1 accounted for \$2.4 million of incentive payments.

## **2. Analysis and Evaluation**

Liberty conducted interviews with Verizon subject matter experts and issued data requests concerning MR-1. Liberty requested and received documentation concerning the implementation of the MR-1 calculations and retention of data in NMP. Verizon provided some of this information in response to Liberty’s initial data request, while it provided the remainder as documentation associated with interviews.<sup>790</sup>

The MR-1 process flow differs between EBTA and Web GUI. EBTA directly accesses Work Force Administration (WFA) and Loop Maintenance Operations System (LMOS) to create, modify, close/cancel, and status trouble tickets. Verizon uses LMOS for UNE-P and POTS trouble transactions and uses WFA for “Specials.” EBTA performs testing through DELPHI to access the Mechanized Loop Testing System (MLT) for a requested test of the circuit. DELPHI interprets the test results from MLT for EBTA. Verizon measures the response time for each query from the time that either RETAS or EBTA recognizes the initial communication until the respective system provides the final response to the CLEC query.

The Web GUI query accesses RETAS. RETAS provides a gateway to Verizon M&R systems STARMEM, WFA, LMOS, and DELPHI. With RETAS, CLECs are able to create, modify, status, close or cancel trouble tickets and get trouble ticket history. In addition, RETAS provides CLEC access to OSS through DELPHI into MLT for testing POTS circuits. For the Web GUI, Verizon measures the response from the time that the CLEC gains access to RETAS to the time that the CLEC receives a final response. The Guidelines specify response time as the time in seconds that elapses from issuance of a query request to receipt of a response by the requesting carrier.<sup>791</sup>

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<sup>788</sup> Petition of Verizon New Jersey Inc. to Modify Certain Carrier to Carrier Performance Measurements and Standards, pp. 6-7.

<sup>789</sup> Guidelines, April 2002, p. 77.

<sup>790</sup> Interview #36, April 4, 2003, handout materials section 1a, and response to Data Request #3.

<sup>791</sup> Guidelines, April 2002, p. 77.

Verizon also provides access to its M&R OSS systems via Verizon’s telephone system when the CLEC Web GUI or EBTA systems are either slow or not operating. Pursuant to the Guidelines, Verizon does not include telephone queries in the MR-1 measure.

Liberty requested identification of the types of services included in the MR-1 metric. Verizon indicated that CKT\_ID type records of “P” are included in MR-1 Web GUI records. Type “P” records include ISDN, PBX, and POTS type services.<sup>792</sup> Verizon does not include specials and other services in its calculations of these metrics. Verizon indicated that it also excludes complex create trouble transactions from the MR-1 metrics.

### **Retail Comparative for Create, Modify, and Cancel**

For the retail comparative for metrics MR 1-01, MR 1-03, and MR 1-04 (six sub-metrics in total because of the separate reporting for EBTA and Web GUI), Verizon adds the overall average inquiry time to the average time for either create, modify, or cancel. Verizon said that inquiry time is the time required for a Verizon representative to access Verizon’s system to retrieve a ticket number and customer information required for it to create, modify, or cancel a trouble ticket.<sup>793</sup> However, this time occurs before the service representative issues the query request and thus is outside of the response time defined in the Guidelines. Moreover, Verizon uses the entire universe of inquiry times to calculate the average.

On the wholesale side, for a CLEC to create, modify, or cancel a trouble ticket it would have already provided and sent to Verizon’s system information like type of line, circuit ID, customer contact person and their telephone number. Therefore, Verizon is not only in conflict with the Guidelines with respect to the retail response time, it is also not providing a fair comparison of retail to wholesale activities.

Liberty requested the numerator and denominator for sub-metric MR-1-01 (create). Verizon provided these data but they were not consistent with Verizon’s reported performance results for retail. Verizon indicated the numerator was 1,196,171 and the denominator was 416,199. This result is 2.87 seconds. Verizon’s reported result was 5.36 seconds because of the addition of inquiry time. The numerator and denominator were, however, consistent with Liberty’s own calculations, which did not include the retail inquiry time average.<sup>794</sup> Liberty also replicated Verizon’s reported retail result by adding the average inquiry time.

Verizon is over-reporting the retail performance for these sub-metrics, making the wholesale performance appear better on a comparative basis. Verizon should either change its methods and recalculate prior results and IP payments, or should provide to the Board a complete justification for its current method and seek the appropriate changes to the Guidelines.

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<sup>792</sup> Response to Data Request #528.

<sup>793</sup> Response to Data Request #527.

<sup>794</sup> Response to Data Request #762. Liberty had to request this because Verizon does not report these fundamental data its performance reports.



### Entitlement Time

Verizon adjusts the Web GUI sub-metrics (MR-1-01-6040, 1-02-6040, 1-03-6040, 1-04-6040, 1-05-6040, and 1-06-6040) for entitlement time for wholesale results. Entitlement time is the time associated with retrieving information from backend systems via a 3270 terminal emulation module after receipt of the carrier request. In part, this module determines proper security. Verizon explained entitlement time as having the following five components<sup>795</sup>:

- Entitlement time 1 captures repositioning time from any LMOS screen to the terminal screen
- Entitlement time 2 is the response time from the virtual enter on the terminal screen to the return of the TR screen or the TE PBX screen (if the TN entered is a PBX number)
- Entitlement time 3 is the response time from the TE PBX screen to the TR screen
- Entitlement time 4 is the response time for repositioning to the RST screen
- Entitlement time 5 is the response time from the virtual entry on the RST screen to the return of a trouble ticket number.

In calculating MR-1 results, Verizon said that it sums the entitlement times and subtracts the sum from the RETAS response time, then adds back entitlement times 4 and 5 to the RETAS response time. These entitlement times appear to take place after receipt of the CLEC’s request and thus should be included in the wholesale response time. The Guidelines do not provide for the exclusion of any entitlement times. Moreover, the reason there is a time difference in the standard for MR-1 retail and wholesale (7 seconds in the case of Web GUI), is to account for matters such as security determinations.

Verizon is under-reporting the wholesale response time by making time exclusions not listed in the Guidelines. Verizon should change its methods and recalculate prior results and IP payments, or should provide to the Board a complete justification for its current methods.

### MR-1-01 Average Response Time – Create Trouble

MR-1-01 measures the average time in seconds that elapses from the issuance of a create trouble ticket request to the receipt of the response by the requesting carrier. For the period November 2001 through January 2003, MR-1-01 resulted in \$1,065,000 in incentive payments.

The formula to calculate the wholesale and retail MR-1-01 sub-metric is as follows:

*MR-1-01- (Sum of all response times for Create Trouble Transactions)/Number of Create Trouble Transactions)*

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<sup>795</sup> Response to Data Request #525.

Liberty reviewed and analyzed the algorithms provided in the January 2003 metric business rules for calculating MR-1-01. Liberty found that the algorithms for the wholesale metrics are consistent with the Guidelines.

Verizon provided Liberty the unfiltered EBTA and RETAS files used to calculate the wholesale MR-1-01 Web GUI and EBTA results and the unfiltered CAD file used to calculate the comparable retail sub-metric for the month of January 2003. To replicate the denominator, Liberty identified and selected all of Create Trouble queries completed by the EBTA system in January. Liberty calculated the numerator by summing the response intervals for completed Create Trouble queries in the EBTA system. Liberty used a similar method for replicating the retail Create Trouble queries completed by the CAD system in January. Liberty replicated Verizon’s result as discussed above under the inquiry time matter.

### **MR-1-02 Average Response Time – Status Trouble**

MR-1-02 measures the average time in seconds that elapses from the issuance of a status trouble query to the receipt of the response by the requesting carrier.

The formula used to calculate the wholesale and retail MR-1-01 sub-metric is as follows.

$$\text{MR-1-02- (Sum of all response times for Status Trouble Transactions)/Number of Status Trouble Transactions)}$$

Liberty reviewed and analyzed the algorithms provided in the January 2003 metric business rules for calculating MR-1-02-6060 (EBTA). Liberty found that the algorithm for EBTA was consistent with the Guidelines. However, the algorithm for replicating MR-1-02-6040, the Web GUI results, was not consistent with the Guidelines as discussed above under the entitlement time issue.

Liberty used the unfiltered January EBTA and RETAS files to replicate the Web GUI and EBTA wholesale performance results for MR-1-02 and the unfiltered CAD file to replicate the retail sub-metric.

To replicate the denominator Liberty identified and selected all of the Status Trouble queries completed by the EBTA system in January 2003. Liberty identified and selected all Status Trouble queries completed by the RETAS to determine the denominator for MR-1-02-6040. Liberty calculated the numerator for the status trouble for MR-1-02-6060 by summing the response intervals for completed status trouble queries in the EBTA system for January 2003. To calculate the MR-1-02-6040 results, Liberty adjusted for the entitlement time included in Verizon’s calculations. This resulted in an increase in the Web GUI status response time. Verizon reported 2.20 seconds while Liberty calculated 2.258 seconds.

To replicate the retail denominator, Liberty identified and selected all of the Status Trouble queries completed in the CAD system in January 2003. To replicate the response time, Liberty summed the response time for status transactions. Liberty found that Verizon calculated the Status Trouble queries consistent with the January 2003 published performance results.

### **MR-1-03 – Average Response Time - Modify Trouble**

MR-1-03 measures the average time in seconds that elapses from the issuance of a modify trouble query to the receipt of the response by the requesting carrier. For the period November 2001 through January 2003, MR-1-03 resulted in \$315,000 of IP payments.

The formula to calculate the wholesale and retail MR-1-01 sub-metric is as follows.

*MR-1-03- (Sum of all response times for Modify Trouble Transactions)/Number of Modify Trouble Transactions)*

Liberty reviewed and analyzed the algorithms provided in the January 2003 metric business rules for calculating MR-1-03-6060 (EBTA) and found them to be consistent with Guidelines. The calculation of MR-1-03-6040 (Web GUI) had the entitlement time problem discussed above. Liberty replicated Verizon’s Wholesale results exactly for MR-1-03-6060. However, for MR-1-03-6040, Verizon reported 2.20 seconds while Liberty calculated 2.4075 seconds.

Liberty used the unfiltered EBTA and RETAS files to replicate the wholesale MR-1-03 Web GUI and EBTA results. In addition, Liberty used the unfiltered CAD file to calculate the retail sub-metric.

Verizon includes all “modify trouble” queries in MR-1-03-6040 wholesale results, but also includes certain status and close trouble transactions. These occur when (1) a CLEC initiates a status query on behalf of an end-user, and (2) trouble ticket cannot be closed upon a request to close.<sup>796</sup> The Guidelines define this sub-metric as measuring the time that elapses from the issuance of a modify query to the receipt of a response. It is not defined in terms of when Verizon needs to invoke a modify routine in order to accomplish either a status or a close query.

To calculate the numerator Verizon adjusted the response time for the Status Trouble, Modify Trouble and Close Trouble queries for entitlement time. This adjustment results in understating the actual response time for the transactions.

### **MR-1-04 – Average Response Time - Request Cancellation/Close Trouble**

MR-1-04 measures the average time in seconds that elapses from the issuance of a cancellation/close query to the receipt of the response by the requesting carrier. For the period November 2001 through January 2003, MR-1-04 resulted in \$345,000 of IP payments.

The formula for MR-1-04 is:

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<sup>796</sup> Response to Data Request #527.

*MR-1-04- (Sum of all response times for Request Cancellation of Trouble Transactions)/Number of Request Cancellation of Trouble*

Liberty reviewed and analyzed the algorithms provided in the January 2003 metric business rules for calculating MR-1-04-6060 and MR-1-04-6060. Liberty found that the denominator algorithms for EBTA and Web GUI were consistent with the Guidelines. However, as discussed above, the algorithm for calculating the Web GUI numerator for MR-1-04-6040 is not consistent with the Guidelines. The algorithms for calculating the retail MR-1-04 from CAD were not consistent with the Guidelines.

Liberty used the unfiltered EBTA and RETAS files to replicate the wholesale MR-1-04 Web GUI and EBTA results. Liberty used the unfiltered CAD file to calculate the retail sub-metric MR-1-04.

To replicate the denominator, Liberty identified, selected, and summed all of the Cancellation/Close Trouble queries completed in the EBTA and Web GUI systems, respectively, in January 2003. Liberty calculated the numerator for the Cancellation/Close trouble queries for MR-1-04-6060 by summing the response intervals for completed Cancellation/Close Trouble queries by the EBTA system. To calculate the MR-1-04-6040 results, Liberty adjusted for the entitlement time included in Verizon’s calculations. This resulted in an increase in the response time for the Web GUI status response. Liberty replicated Verizon’s wholesale result of 19.14 for MR-1-04-6060. For MR-1-04-6040, Verizon reported 0.60 while Liberty calculated 0.605.

To replicate the retail denominator, Liberty identified and selected all of the Close/Cancellation Trouble queries completed by the CAD system in January 2003. Liberty then summed the queries. To replicate the response time, Liberty summed the response times for MR-1-04-6060. In addition, to the Close/Cancellation transactions, Verizon included average response time for inquiry trouble queries in the calculation of this sub-metric. Liberty excluded inquiry time and calculated a response time of 3.13 seconds, compared to Verizon’s reported result of 6.21 seconds.

**MR-1-05 – Trouble Report History (by TN/Circuits)**

MR-1-05 measures the time in seconds that elapses from the issuance of a trouble report history query to the receipt of the response by the requesting carrier.

The formula to calculate the wholesale and retail MR-1-05 sub-metric is as follows.

*MR-1-05- (Sum of all response times for Trouble Report History Transactions)/Number of Trouble Report History Transactions)*

Liberty reviewed and analyzed the algorithms provided in the January 2003 metric business rules for calculating MR-1-05 and found them to be consistent with the Guidelines with the exception of the entitlement time exclusion discussed above.

Liberty used the unfiltered RETAS files to replicate the wholesale MR-1-05-6040 Web GUI results and the unfiltered CAD file to replicate the retail sub-metric.

To calculate the wholesale denominator, Liberty identified and selected all of the Trouble History queries completed by the Web GUI systems in January 2003. Liberty calculated the numerator for the cancellation/close trouble queries for MR-1-05-6040 by summing the response intervals for completed history queries for January 2003. Liberty adjusted for the entitlement time included in Verizon's calculations. This resulted in an increase in the response time for the Web GUI history response. For sub-metric MR-1-05-6040, Verizon reported 1.16, while Liberty calculated 1.829.

Liberty replicated the retail Trouble History query response time from the January 2003 CAD files. Liberty determined the numerator by summing the response times for the Trouble History query and the denominator by summing the number of Trouble History queries. Liberty found that Verizon calculated the retail Trouble History queries consistent with Verizon's performance reports.

#### **MR-1-06 – Test Trouble (POTS Only)**

MR-1-06 measures the time in seconds that elapses from the issuance of a Test Trouble query to the receipt of the response by the requesting carrier. For the period November 2001 through January 2003, MR-1-06 resulted in \$675,000 in IP payments.

The formula to calculate the wholesale and retail MR-1-06 sub-metric is as follows.

$$\text{MR-1-06} = (\text{Sum of all response times for Test Trouble Transactions}) / \text{Number of Test Trouble Transactions}$$

Liberty reviewed and analyzed the algorithms provided in the January 2003 metric business rules for calculating MR-1-06-6040 and found them to be consistent with the Guidelines except for the entitlement time exclusion discussed above.

Liberty used the unfiltered RETAS and EBTA files to replicate the wholesale performance results. Liberty used the unfiltered CAD file to replicate the retail sub-metric. Liberty identified MR-1-06-6040 as the sub-metric it would replicate.

To calculate the wholesale denominator, Liberty identified and selected all of the test trouble queries completed in the Web GUI system in January 2003. Liberty calculated the numerator for the Test Trouble queries for MR-1-06-6040 by summing the response intervals for completed test trouble queries for January 2003. Liberty adjusted for the entitlement time included in Verizon's calculations. This resulted in an increase in the response time for the Web GUI history response. For sub-metric MR-1-06-6040, Verizon reported 49.48, while Liberty calculated 50.169.

Liberty used the unfiltered CAD files to replicate the retail test trouble query response time for January 2003. The numerator was determined by summing the response times for the Test

Trouble queries. Liberty replicated the denominator by summing the number of Test Trouble queries. Liberty found that the retail Test Trouble queries were calculated consistent with Verizon’s January 2003 performance reports.

### **3. Findings and Recommendations**

#### **Verizon incorrectly reported retail performance results for MR-1-01, MR-1-03, and MR-1-04.**

Verizon has overstated the average retail response time for at least January 2003. Verizon calculated its reported results by adding the average inquiry time to the create, close/cancellation, and modify average times. This resulted in overstating the average retail response time for each of the sub-metrics and causing the wholesale results to appear better on a comparative basis.

Verizon should either change its methods and recalculate prior results and IP payments, or should provide to the Board a complete justification for its current method and seek the appropriate changes to the Guidelines.

#### **Verizon is under-reporting the CLEC’s Web GUI response time for metrics MR-1-02, MR-1-03, MR-1-04, MR-1-05, and MR-1-06.**

Verizon excluded entitlement time from total response time. Verizon contends that entitlement time is the time associated with retrieving information from its backend systems after receiving a carrier request. The standards for the MR-1 sub-metrics are parity with Verizon retail results plus not more than 4 or 7 seconds. This differential exists to account for any difference between the wholesale and retail processes, including any steps that may be required to address security issues and determine resource availability.

The Guidelines do not provide for the exclusion of entitlement times to the calculation of response time. Verizon is under-reporting the wholesale response time by making time exclusions not listed in the Guidelines. Verizon should change its methods and recalculate prior results and IP payments, or should provide to the Board a complete justification for its current methods.

#### **Verizon’s methods for MR-1-03, Web GUI are not consistent with the Guidelines.**

Verizon includes all “modify trouble” queries in MR-1-03-6040 wholesale results, but also includes certain status and close trouble transactions. These occur when (1) a CLEC initiates a status query on behalf of an end-user, and (2) trouble ticket cannot be closed upon a request to close. The Guidelines define this sub-metric as measuring the time that elapses from the issuance of a modify query to the receipt of a response. It is not defined in terms of when Verizon needs to invoke a modify routine in order to accomplish either a status or a close query. Verizon should

either only count modify queries in this sub-metric or justify its current methods and request that the Guidelines be changed to reflect those methods.

**Verizon does not report MR-1 results for all required services.**

Verizon, in calculating its reported results for MR-1 Web GUI wholesale, includes only POTS type of services in its calculations and is not in conformance with the Guidelines. The Guidelines for MR-1 provide for a single product exclusion, *CLEC complex Create Trouble transaction that cannot be performed by Verizon Retail*. Furthermore, the Guidelines indicate that MR-1-06 should be POTS only, implying that other measures include all services. Verizon indicated that it includes ISDN, PBX, and POTS type services in MR-1, but did not indicate why other services have not been included. Because Verizon has not measured the response times for other services, Liberty cannot state what impact this would have on the performance report.

Liberty recommends that Verizon either include other services in the MR-1 sub-metrics or request permission to update the Guidelines to reflect what products are actually being included.

## **C. MR-2, Trouble Report Rate**

### **1. Background**

#### **a. Systems Used for MR-2 through MR-5**

Metrics MR-2 through MR-5 use common files, databases, and systems. Verizon extracts data from six source systems for metrics MR-2 through MR-5: Loop Maintenance Operating System (LMOS), Work Force Administration Control (WFAC), Network Service Data Base (NSDB), Network Operations Results Database, Mechanized Trouble Analysis System (MTAS), Network Operations Results Database (NORD), and Network Analysis and Measurement System (NAMS). These M&R source systems create trouble tickets, populate the trouble tickets fields, store the trouble ticket data, calculate relevant fields, and prepare metric reports.

WFAC coordinates and tracks installation and repair activities for an entire circuit from the initiation of a work request to the completion of the request. During installation and repair, WFA processes the human and machine tasks required for completion of the work. Additionally, WFAC provides detailed circuit records, pending work items, and the history of a circuit’s activity.<sup>797</sup> WFAC maintains trouble tickets 45 days.<sup>798</sup>

NSDB is a line record repository for WFAC. NSDB retains trouble reports taken in the last 45 days and provides them for use by both NORD and NAMS for calculating metrics. NSDB also provides Unbundled Network Element (UNE) loop data to NORD.

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<sup>797</sup> Interview #36, April 4, 2003, handout materials section 1b.

<sup>798</sup> Interview #36, April 4, 2003, handout materials section 1a.

LMOS is a mechanized system for originating, prioritizing, and tracking maintenance work items like trouble tickets. In addition, it provides a database of customer line record and circuit information for testing, dispatch, and measurement functions.

MTAS serves as a repository of closed customer trouble history records from LMOS. It provides administrative and analytical support for the Administrative Repair Service Bureau environment. MTAS provides line counts to NAMS. MTAS maintains trouble tickets for 400 days.

NAMS is a system that provides data for the calculation of M&R and provisioning metrics. NAMS extracts data from WFAC, NSDB, and LMOS to calculate wholesale and retail metrics for “Specials.”<sup>799</sup> In New Jersey, NAMS provides Specials data for reporting the M&R metrics.

NORD is an AS400\DB2 database system that calculates plain old telephone (POTS) and UNE-P metrics. WFA, MTAS, and NSDB are data sources for NORD. Verizon extracts UNE loop data from NORD and WFAC and POTS data from MTAS for metric reporting.

## **b. MR-2 Background<sup>800</sup>**

The metrics within MR-2 report the total network trouble report rate, loop trouble report rate, central office report rate, and percent subsequent reports. The metric defines trouble report rate as:

*Total initial Customer direct or referred Troubles reported, where the trouble disposition code was found to be in the Verizon network, per 100 lines/circuits/trunks in service.*

Network Troubles include drop wire trouble (Disposition Code 3), Cable Troubles (Disposition Code 4), and Central Office Trouble (Disposition Code 5). The loop troubles are composed of drop wire troubles (Disposition Code 3) and cable troubles (Disposition Code 4). The Central Office troubles are solely Disposition Code 5.

The purpose of this metric is to provide a quantitative comparison of Verizon’s M&R retail services with comparable M&R services provided to wholesale customers. In addition, the metric includes a comparison of the number of subsequent reports received from the retail and wholesale segments of the market. Subsequent reports are reports that Verizon receives from customers concerning a circuit while a trouble report is pending.

Verizon reports results for MR-2 for POTS, 2-wire Digital Services, and 2-wire xDSL services on a regional basis, while it reports Specials and Trunks only on a statewide basis. Verizon reports the results for Verizon retail, CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific.

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<sup>799</sup> Specials are special engineered circuits.

<sup>800</sup> Response to Data Request #17, and C2C Guidelines, April 2002.



The Guidelines define several exclusions for MR-2:

- Troubles reported on official lines
- Troubles closed due to customer action
- Troubles reported by Verizon employees in the course of performing preventive maintenance where no customer reported the trouble
- With the exception of MR-2-04, Verizon excludes subsequent reports from all metrics
- For MR-2-01, -02, -03, and -04, Verizon excludes customer premises equipment troubles, and troubles reported but not found
- For MR-2-02 and -03 for 2-wire xDSL services, Verizon excludes installation troubles.

For metrics MR-2-01, -02, and -03, the standards are parity with Verizon retail. For metrics MR-2-04 and -05, there are no standards.

The formulas for the MR-2 sub-metrics are:

*MR-2-01- (Count of all trouble reports with found network troubles)/(Count of Lines or specials or trunks in service)*

MR 2-01 measures the total number of troubles reported including both loop and central office per 100 lines. The numerator contains troubles with disposition codes 03, 04, and 05. The denominator includes a count of all lines included in that product. Verizon measures the lines for each service on the 2<sup>nd</sup> day of the month following the end of the report month.

*MR-2-02- (Count of all loop trouble reports)/(Count of lines in service)*

MR 2-02 measures the total number of loop (drop lines and cable) troubles during a month for lines in a service. The loop troubles include all trouble tickets with a disposition code of 03 and 04. The denominator includes a count of all lines providing that service.

*MR-2-03- (Count of all central office trouble reports)/(Count of lines in service)*

MR 2-03 measures the total number of central office problem trouble tickets for a month for lines in a service. Disposition code 05 identifies central office troubles. The denominator includes the number of lines providing that service in that month. Verizon measures the denominator on the 2<sup>nd</sup> day after the end of the month.

*MR-2-04- (Count of all subsequent reports)/(Count of total disposition code 03, 04, and 05 troubles reported)*

MR 2-04 measures subsequent reports as a percentage of the total trouble tickets with disposition codes 03, 04, and 05. Subsequent reports are additional trouble reports filed while a trouble ticket is pending. The denominator includes the number of disposition code 03, 04, and 05 troubles reported.

*MR-2-05- (Count of all CPE, Found OK, and Test OK trouble reports)/(Count of Lines)*

MR 2-05 measures found okay (FOK), test okay (TOK), and customer premises equipment (CPE) trouble tickets as a percentage of lines in service. Verizon codes trouble tickets 07, 08, and 09 when it either does not find a problem in the circuit or the circuit tests okay. Verizon codes a trouble ticket disposition 12 or 13 when the trouble is located on the customer’s side of the network interface device (NID). The denominator is the number of lines providing this service, which Verizon measures on the 2<sup>nd</sup> day of the month following the end of the report month.

Liberty selected several measurements within MR-2 for detailed examination. Liberty discusses the criteria used to select these measurements in section I.D of this report. The selected measurements are:

- MR-2-02-2100: Trouble Report Rate, Network Trouble Report Rate (Loop), POTS
- MR-2-01-3200: Trouble Report Rate, Network Trouble Report (Total), Specials
- MR-2-02-3341: Network Trouble Report Rate, Network Trouble Report Rate (Loops), 2 Wire Digital
- MR-2-03-3140: Network Trouble Report (Central Office), POTS Platform
- MR-2-02-2342 Trouble Report Rate, Network Trouble Report Rate, Loop, 2 Wire xDSL.

MR-2-01, -02, and -03 are included in the IP. For the period November 2001 through January 2003, the MR-2 metrics resulted in \$2,880,916 of incentive payments by Verizon.

## **2. Analysis and Evaluation**

A participating CLEC provide Liberty with a set of UNE-P trouble tickets from January 2003. This set included 3,753 telephone numbers, some of which included more than one trouble ticket. Liberty matched these data against Verizon’s NORD data set and found 24 trouble tickets that Verizon would have counted in wholesale results for MR-2 through MR-5 except that Verizon included them in its retail data set. The fields that would typically classify the trouble ticket pointed to retail tickets.<sup>801</sup> Liberty discovered this data inconsistency very late in the audit and could not resolve it with Verizon and the CLEC. The number of tickets at question represented a very small percentage of the sample and would not have had a measurable effect on reported results. This matter does, however, point to the need for Verizon to focus its own quality assurance efforts on the integrity of the data it captures for use in performance measures.

MR-2 measures the number of wholesale and retail trouble reports closed during a monthly reporting period. Verizon uses LMOS and WFA to create trouble tickets, accumulate and process information, and close trouble tickets. Because of the fundamental role these systems play in recording the information in trouble tickets, Liberty reviewed and analyzed the flow of trouble tickets through both LMOS and WFA. Liberty used interviews with Verizon’s subject matter experts and data requests to develop an understanding of the operation of these systems, with

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<sup>801</sup> Response to Data Request #940.

particular attention given to the processes that populate the fields used to calculate the M&R metrics.

Verizon provided diagrams of the flow of trouble tickets through both systems but did not provide specific information on the populating of trouble tickets. Verizon provided the address of web sites and other sources that assisted in identifying the fields that Verizon populates during various parts of the M&R process. During interviews, Verizon provided information that identified the fields that it uses to calculate certain metrics. Verizon also identified the source of the information and what function was responsible for input of the information.<sup>802</sup> Verizon provided a limited amount of documentation of the processing of trouble tickets.

Liberty reviewed the WFA process for creating, processing and closing a trouble ticket. A CLEC initiates the trouble when it submits a repair request either through the Web GUI or EBTA to Verizon. The CLEC provides and populates type of line, trouble code, customer contact telephone number, circuit identification (CKTID), customer contact name, and CLEC name on the trouble ticket.<sup>803</sup> Verizon routes the information through DELPHI to REACT 2001 to test the circuit if the CLEC requested a test. If the test demonstrates that the trouble is not located in the circuit, Verizon adds the disposition code as FOK, TOK, or CPE. RCMC then clears the trouble, populating the clear time field. Verizon notifies the CLEC and closes the trouble ticket.

If either the Verizon loop or central office is the location of the trouble, then Verizon establishes a commitment and hands off the ticket to either the field forces or central office for restoration of service.<sup>804</sup> Verizon may dispatch technicians who restore service. The technician notifies the Regional CLEC Maintenance Center (RCMC) that he cleared the trouble. RCMC adds the clear time and disposition code. Verizon then closes the trouble ticket and RCMC stamped the close date and time after attempting to notify the customer.

After Verizon has closed a trouble ticket, NSDB downloads and stores UNE loop and shared services trouble tickets. NAMS stores Specials trouble tickets. MTAS provides line counts to NAMS. WFAC downloads UNE loops trouble tickets to NORD. WFAC provide Specials line counts to NAMS for metrics purposes.

LMOS creates trouble tickets when a CLEC using either EBTA or Web GUI reports a trouble in the network for a POTS type of service. The CLEC provides customer name, type of line, circuit ID, trouble type code, customer contact person, and the additional trouble information field. Verizon enters major customer number (MCN) and the trouble description in LMOS if the CLEC did not provide that information. LMOS populates the trouble ticket number and receipt date/time. Verizon often tests the trouble using Multi Line Test (MLT) for line test and STARMEM for service and memory trouble. If Verizon finds the trouble and corrects it, Verizon closes the ticket with disposition code, out of service or affecting service, the clear date and time, and the close date and time fields populated in the ticket.<sup>805</sup>

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<sup>802</sup> Interview #36, April 4, 2003, section 2a and 2b of the handout materials.

<sup>803</sup> Interview #36, April 4, 2003, section 1 of the handout materials.

<sup>804</sup> Response to Data Request #40.

<sup>805</sup> Interview #36, April 4, 2003, section 1 of the handout materials.

If Verizon does not repair the trouble and the trouble is in either the central office or outside plant, then LMOS populates the trouble category on the basis of the type of trouble reported. In addition, using information from the customer service record in the NSDB, LMOS populates class of service, area code, wire center, installation trouble, and repeat trouble in the trouble ticket. After determining whether the trouble is in the loop or in the central office, Verizon provides a commitment time to the customer on the basis of the availability of its work force.<sup>806</sup>

Verizon routes the trouble report to either Work Force Administration Dispatch Out (WFA DO) or Work Force Administration Dispatch In (WFA DI) depending on whether the trouble is in the loop or central office. WFA DO or WFA DI enters the trouble ticket into a queue for technicians to work. The technician has a commitment time to clear the trouble in the circuit. If access is necessary, the technician arrives during the window that Verizon established with the customer. The technician will populate the customer caused missed appointment field if the customer is not available during this time window. If the technician repairs the problem in the outside plant, he or she uses the IFAS device to populate the clear date and time and, if necessary, to re-populate the out-of-service field if conditions have changed from service-affecting to out-of-service. The technician closes the trouble ticket in LMOS. MTAS then downloads trouble tickets into NORD on a daily basis.

After reviewing the trouble ticket process, Liberty investigated Verizon’s controls used to ensure quality results in the trouble ticket process. Adequate control would require Verizon to have in place not only reasonable managerial controls over the work force preparing trouble tickets but also adequate quality controls over the entire process. Periodic audits and studies of the quality of the data input into trouble tickets play a role in the necessary controls. Liberty requested all internal audits, special studies, or other studies conducted by Verizon of the trouble ticket process. Verizon stated that there had been no internal audits or special studies conducted concerning trouble ticket quality assurance and control.<sup>807</sup>

Liberty investigated the managerial controls imposed on employees to ensure accurate information on trouble tickets. In response to data requests, Verizon provided employee evaluation forms for customer service representatives, and for inside and outside plant technicians. For customer service representatives, Liberty reviewed forms containing the criteria Verizon uses to evaluate employees at the RCMC. Verizon also provided a summary of the results of the interviews conducted at the various RCMCs.<sup>808</sup> For outside plant maintenance, Verizon indicated that the Regional Operation Staff review timesheets for a work unit once a week for accuracy. This staff reviews missed commitments, narrative mismatches with final disposition codes, group tickets, call-back logs, and minimum points of entry. Local management receives all reports for remediation.<sup>809</sup>

The employee evaluation forms are a reasonable method for evaluating the quality of work done by M&R employees. However, Verizon apparently does not undertake a systematic effort to use this information to identify problems with the quality of trouble ticket information. Verizon

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<sup>806</sup> Response to Data Request #40.

<sup>807</sup> Response to Data Request #424.

<sup>808</sup> Response to Data Request #273 follow-up.

<sup>809</sup> Response to Data Request #667.

prepared the summary for Liberty's benefit and does not use it as a tool for ensuring product quality. Furthermore, the lack of internal audits or other studies of the validity of information inputted into trouble tickets is problematic for maintaining the quality of performance reporting.

Liberty used data requests and interviews to attempt to validate Verizon's position that a trouble ticket created by a CLEC in its M&R systems either will be included in the performance metric or will be excluded in accordance with the Guidelines. Liberty requested identification of any exclusion of trouble tickets that occurs within the M&R trouble ticket process before metric calculations. Verizon indicated that if a CLEC initiated a trouble ticket in the front end and closed in LMOS or WFA, then Verizon would pass it to NORD or NAMS for inclusion or exclusion from the MR-2 metrics.<sup>810</sup>

Liberty used information provided by a CLEC to test if trouble tickets initiated by CLECs flow to the MR-2 sub-metrics. Liberty interviewed the CLEC's M&R experts and requested their total universe of trouble tickets for January 2003 for New Jersey. Liberty notified the CLEC of its intention to use these trouble tickets to determine whether the Verizon's trouble tickets data set was complete and accurate. The CLEC was unable to provide its entire universe of trouble tickets; however, it provided the UNE-P tickets for January and February 2003.

The Guidelines require the exclusion of subsequent reports from many of MR-2 sub-metrics. Liberty tested Verizon's exclusion of subsequent reports in MR-2. Verizon creates subsequent reports in LMOS, stores them in MTAS, and reads them into NORD with the ARFLG field populated with an X. Verizon stores WFA subsequent reports in NSDB and downloads them to NAMS. Because NAMS is a DB2 system, subsequent trouble reports are not included in the maintenance table used to generate the metric reports.<sup>811</sup> Liberty reviewed Verizon's metric business rules for January 2003 and found that Verizon's MR-2 metrics are in compliance with this requirement. Liberty also reviewed a number of files used to generate MR-2 sub-metric reports. In those sampled, Liberty found that Verizon properly excluded subsequent reports.<sup>812</sup>

The Guidelines require the exclusion of trouble tickets reported by Verizon employees in the course of performing preventive maintenance. Liberty reviewed and analyzed the exclusion of these trouble tickets. In LMOS, Verizon uses field report category (CAT) to exclude these trouble tickets. Verizon stated they included only trouble tickets with CAT equal to 1, thus excluding all other categories of reports. In WFA, Verizon uses field RPT\_CAT to exclude other categories of reports. Verizon included only CAT equal to CR in the file used to calculate the metric results. Liberty reviewed Verizon's metric business rules for MR-2 and found this to be correct. Liberty also reviewed filtered files used to calculate the metrics and found that Verizon had properly excluded trouble ticket reported by Verizon employees in the course of performing preventive maintenance.<sup>813</sup>

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<sup>810</sup> Response to Data Request #221.

<sup>811</sup> Response to Data Request #3, NAMS Software Requirements Specification and Business Transformation Rules for the Network Metrics Platform, p.18.

<sup>812</sup> Response to Data Request #542.

<sup>813</sup> Response to Data Request #542.

The Guidelines provide for the exclusion of affiliate reports from the CLEC Aggregate results. For POTS and UNE-P products, Verizon applies this exclusion in NORD using the CLEC\_ID field. For Specials, Verizon excludes affiliates through the use of the Affiliate table.<sup>814</sup> Liberty reviewed the filtered files provided by Verizon and found that the Verizon had properly excluded affiliates from the CLEC aggregate results.<sup>815</sup>

The Guidelines require that Verizon exclude troubles reported by customers but not found by Verizon. This condition occurs when Verizon, either through circuit tests or a technician, determines that the network is working properly. For POTS services, closing the trouble ticket requires Verizon to enter a disposition code in the DISP field using disposition codes 07, 08, or 09. For Specials, Verizon excludes troubles reported by customers but not found by Verizon using the field TRB\_CD. Verizon includes in its metric files only trouble tickets coded FAC or CO. Liberty reviewed Verizon’s metric business rules for the calculation of MR-2 metrics and found that Verizon applied the exclusion correctly. Liberty also reviewed filtered files provided by Verizon to ascertain that the exclusion was appropriate.<sup>816</sup>

The Guidelines require that Verizon exclude CPE troubles from the MR 2-01, -02, -03, and -04 sub-metrics. CPE troubles occur when the circuit test or technician determines the trouble is located beyond the Network Interface Device (NID) so it is the customer’s responsibility. Verizon identifies trouble tickets due to CPE problems by populating the DISP field with a 12 disposition code. In NAMS, Verizon populates the TRB\_CD field in the trouble ticket CPE, excluding it because the system extracts only disposition codes FAC or CO for the MR-2 metric results. Liberty reviewed Verizon’s January 2003 MBRs and determined that the treatment of CPE-related trouble reports in both NORD and NAMS was correct. Liberty also requested and reviewed selected filtered files used to calculate MR-2 and found that Verizon applied the exclusion in accordance with the Guidelines.<sup>817</sup>

Liberty requested and obtained the unfiltered NORD and NAMS files for the month of January 2003. The NORD file contained both wholesale and retail trouble tickets. It consisted of 281,396 records with 32,445 wholesale trouble tickets and 248,895 retail trouble tickets.<sup>818</sup> The NAMS file contained both wholesale and retail records. It contained 16,598 records with 1,764 wholesale trouble tickets and 14,834 retail trouble tickets.

Liberty used these files to replicate Verizon’s reported results. This process involved the identification of wholesale and retail trouble tickets, separation of products, and application of the business rules consistent with the Guidelines.<sup>819,820</sup>

Liberty replicated Verizon’s numerators and denominators with the exception of MR 2–02-2100. Liberty identified 1,565 trouble tickets in the numerator while Verizon identified 1,562. Liberty found its replication of MR-2 sub-metrics to be consistent with Verizon’s January 2003 New

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<sup>814</sup> Response to Data Request#3, NAMS Business Transformation Rules, Pages199-201.

<sup>815</sup> Response to Data Request #542.

<sup>816</sup> Response to Data Request #542.

<sup>817</sup> Response to Data Request #542.

<sup>818</sup> Response to Data Request #530.

<sup>819</sup> Responses to Data Requests #541 and #897.

<sup>820</sup> Interview #36, April 4, 2003.

Jersey Performance Report. Liberty did not determine the reason for the difference of three trouble tickets in one sub-metric, but they had a very small effect on the metric results.

In summary, Liberty reviewed each of the exclusions contained in MR-2 and found that Verizon had properly treated them in calculating the sub-metrics. Liberty replicated Verizon’s calculation of the sub-metrics and reviewed the filtered files Verizon used for preparing the performance report. In each case, Liberty found Verizon’s performance metrics consistent with its metric business rules and the Guidelines.

## **D. MR-3, Missed Repair Appointments**

### **1. Background<sup>821</sup>**

The Guidelines define this metric as follows:

*The percentage of reported Network Troubles not repaired and cleared by the date and time committed.*

A maintenance appointment is the date and time that Verizon agrees to have the reported trouble restored or cleared.<sup>822</sup> Either the RCMC or legacy systems provide maintenance appointments, which vary depending on work force availability.<sup>823</sup> If Verizon does not have the trouble restored or cleared within the commitment window, then Verizon counts it as a missed appointment.

The sub-metrics within MR-3 report the percent loop missed repair appointments, percent central office missed repair appointments, and percent missed CPE/TOK/FOK repair appointments. Verizon reports results for POTS, 2-wire Digital Services, and 2-wire xDSL services on a regional and statewide basis. Verizon reports results for Verizon retail, CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific.

The Guidelines call for the following exclusions for MR-3:

- Missed appointments caused by the CLEC or end-user
- Subsequent reports
- Troubles closed by customer action
- Troubles reported by Verizon employees in the course of performing preventive maintenance where the customer did not report the trouble
- CLEC aggregate reports exclude Verizon affiliate data.
- With the exception of MR-3-03, Verizon excludes CPE, FOK, and TOK troubles.

For metrics MR-3-01 and -02, the standard is parity with Verizon retail. There is no standard for metric MR-3-03.<sup>824</sup>

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<sup>821</sup> Response to Data Request #17, and C2C Guidelines, April 2002.

<sup>822</sup> Response to Data Request #40 (Update), page 2.

<sup>823</sup> Response to Data Request #40.

<sup>824</sup> C2C Guidelines, April 2002 p.82.

The IP includes 12 trouble report results from MR-3. During the period November 2001 through January 2003, the MR-3 metric accounted for \$129,483 of Verizon’s payments under the incentive plan.<sup>825</sup>

MR 3-01 measures the percent of loop trouble tickets (disposition codes 03, 04) where Verizon restored the service after its commitment time. The denominator includes the number of loop troubles that occurred during the measurement period. The formula is:

*MR-3-01- (Count of loop trouble where clear time is greater than commitment time)/(Count of loop troubles)*

MR 3-02 measures the central office appointment misses as a percent of the total trouble tickets with disposition code 05. The denominator includes the number of central office trouble tickets incurred during the measurement period. The formula is:

*MR-3-02- (Count of central office trouble where clear time is greater than commitment time)/(Count of central office troubles)*

MR 3-03 measures the number of missed appointment trouble tickets with disposition codes 07, 08, 09, 12, and 13 as a percentage of the total trouble tickets with those disposition codes. The formula is:

*MR-3-03- (Count of CPE, TOK, and FOK troubles where clear time is greater than commitment time)/(Count of all CPE, TOK, and FOK troubles)*

Liberty selected several MR-3 sub-metrics for detailed examination. Liberty discusses the criteria used to select these measurements in section I.D of this report. The selected measurements are:

- a. MR-3-01-3140: % Missed Repair Appointment (Loop), POTS Platform
- b. MR-3-01 2341: % Missed Repair Appointment (Loop), 2 Wire Digital
- c. MR-3-02-3140: % Missed Repair Appointment (Central Office), POTS Platform
- d. MR-3-02-2100: % Missed Repair Appointment (Central Office), POTS
- f. MR-3-01-3112: % Missed Repair Appointment (Central Office), POTS/loop.

## **2. Analysis and Evaluation**

Liberty reviewed and analyzed Verizon’s practices to determine if they were consistent with the requirements for this metric in New Jersey. Liberty requested and received Verizon’s practices and procedures governing the establishment of commitment dates. The practice provides detailed instructions to RCMC personnel on establishing commitment objectives. If the service is a UNE, then WFA provides the commitment. Verizon provides RCMC operators with a schedule for the commitment offer in New Jersey.<sup>826</sup> Similarly, if the service is a POTS, LMOS provides a list of commitment times that repair technicians load daily.<sup>827</sup> Liberty found that Verizon’s practices

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<sup>825</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>826</sup> Response to Data Request #40, page 6.

<sup>827</sup> Response to Data Request #40.



provide a relatively detailed procedure for customer representatives to follow when establishing commitment dates and times. Verizon’s procedures are consistent with the MR-3 requirements.

A concern of CLECs is the accuracy of Verizon’s trouble tickets that deal with met appointments. Liberty attempted to evaluate the accuracy of Verizon met appointment records using a CLEC’s UNE-P data set. Liberty encountered some difficulties in comparing the CLEC’s and Verizon’s data because, among other things, telephone number matching could lead to erroneous results as some numbers had more than one trouble ticket. For a sample of records, Liberty verified that the CLEC’s indication of commitment met matched with those designated by Verizon.

Liberty interviewed Verizon experts and requested information concerning the populating of fields used to calculate MR-3 metrics. In WFAC if it misses an appointment, Verizon populates the COMM/OBJT field.<sup>828</sup> Verizon uses three fields to determine the Met Commitment metric: clear date (CLDT), clear time (CLT), and appointment date. The fields in the NAMS data set are clear date, clear time, and commitment time. Verizon sets the commitment flag in both LMOS and WFAC. For LMOS, the repair technician is responsible for entering the clear date and time and closing the ticket out. In WFAC the RCMC enters the clear time and notifies the customer prior to closing out the ticket. In both systems if the clear time is within the commitment window then Verizon considers the commitment met. Verizon transfers the information to NORD and the system populates the “M” field with an “X” if the clear time occurs after the commitment time.<sup>829</sup>

The Guidelines require the exclusion of subsequent reports in calculating the MR-3 metrics.<sup>830</sup> For the metrics using records from the NORD data set, the system populates the field ARFLG with an “X” if the trouble ticket is a subsequent. In replicating the metrics included in the NORD data set, Liberty excluded the subsequent trouble tickets. Because NAMS is a DB2 system, subsequent trouble reports are not included in the maintenance table that Verizon uses to generate the metric reports.<sup>831</sup> Liberty also reviewed the filtered files provided by Verizon to ascertain that the exclusion was appropriate.<sup>832</sup> Liberty found that Verizon correctly applies the exclusion consistent with the Guidelines.

The Guidelines provide for the exclusion of Missed Appointments due to no access. Liberty requested and received Verizon practices used by technicians in determining whether they should populate the no access field (N) in LMOS. The practice appropriately provides the conditions under which the technician would determine that no access had occurred. NORD populates the field N if the disposition code is 03, 04, or 05, and the CLEC or customer does not provide access during the appointment window.<sup>833</sup> The practice provides sufficient guidance so that following it would be in compliance with the MR-3 metric requirements.

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<sup>828</sup> Response to Data Request #40.

<sup>829</sup> Response to Data Request #40.

<sup>830</sup> New Jersey C2C Guidelines, April 2002, p 82.

<sup>831</sup> Response to Data Request #3, NAMS Software Requirements Specification and Business Transformation Rules for the Network Metrics Platform, p.18.

<sup>832</sup> Response to Data Request #542.

<sup>833</sup> Interview #36, April 4, 2003, handout materials, insert 9.

The Guidelines provide for the exclusion of trouble tickets that were TOK, FOK, and CPE.<sup>834</sup> Liberty investigated whether Verizon had properly excluded these trouble tickets. Verizon can code trouble tickets for these conditions either as a result of circuit tests or by technicians in the field. Liberty reviewed the filtered files and found the trouble tickets with disposition codes 07, 08, 09, 12, and 13 had been properly excluded in the January 2003 MR-3 metric calculation process.<sup>835</sup> Liberty also reviewed the MR-3 MBRs and found them to be consistent with the Guidelines.

To verify that Verizon is properly calculating MR-3, Liberty requested Verizon’s unfiltered source files for NORD and NAMS for January 2003. Liberty reviewed Verizon’s calculation algorithm and found it consistent with the Guidelines. Liberty used the files to replicate Verizon’s January 2003 MR-3 metrics. The numerators for each of Verizon’s MR-3 sub-metric results were the troubles (loop or central office) where clear time was greater than the commitment time. The denominators were the count of either loop or central office troubles. Liberty found that Verizon’s method for calculating this measure conforms to the Guidelines.

In summary, Liberty reviewed each of the exclusions contained in MR-3 and found that Verizon had properly applied the exclusions in calculating the MR 3 sub-metrics. Liberty replicated Verizon’s calculation of the sub-metrics and reviewed the filtered files used for preparing the performance report, finding them consistent with its metric business rules. Liberty also found Verizon’s calculations to be consistent with the Guidelines. Liberty’s own results for MR were consistent with Verizon’s results.

## **E. MR-4, Trouble Duration Intervals**

### **1. Background<sup>836</sup>**

The Guidelines define this metric as:

*For Network Trouble reports for the Verizon Network, the average duration time (measured in hours and minutes {as a percentage of an hour}) from trouble receipt to trouble clearance.*

The MR-4 metric measures the out-of-service interval as the period from receipt of the trouble report at the Verizon interface to the time that Verizon repairs the trouble and clears it in the network. Out-of-service condition (OOS) means that the customer cannot be called or has no dial tone.<sup>837</sup> Verizon initially sets this condition in LMOS or WFAC with the “OS” being populated with an “X.” Once the OS condition is set, Verizon cannot change it back to the condition service affecting (SA) without closing out the ticket and reopening a new trouble ticket.<sup>838</sup> For POTS and complex-type services, Verizon measures the time on a “running clock” basis. For these services the “mean time to repair” is the period from the receipt to the clearing of the

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<sup>834</sup> New Jersey C2C Guidelines, April 2002, p 82.

<sup>835</sup> Response to Data Request #542.

<sup>836</sup> Response to Data Request #17, and C2C Guidelines, April 2002.

<sup>837</sup> C2C Guidelines, April 2002 p. 84.

<sup>838</sup> Interview #36, April 4, 2003.

trouble ticket. For Specials, Verizon measures the time on a “stop clock” basis. Verizon stops the clock (*i.e., the time is not accumulating*) when the trouble is being tested by the CLEC. Network troubles include drop wire troubles (disposition code 03), cable troubles (disposition code 04), and central office troubles (disposition code 5).

The metrics within MR-4 report the mean time to repair, loop mean time to repair, central office mean time to repair, and percent of all troubles cleared within 24 hours. Verizon reports results for POTS, complex, 2-wire digital services, and 2-wire xDSL services on a state and regional basis, while it reports specials and trunks on only a statewide basis. Verizon reports MR-4 results for Verizon retail, CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific.<sup>839</sup>

The Guidelines define the following exclusions for MR-4:

- Troubles closed due to customer action
- Troubles reported by Verizon employees in the course of performing preventive maintenance where no customer reported the trouble
- Troubles reported but not found, CPE troubles, and subsequent reports
- CLEC aggregate reports exclude Verizon affiliated data
- Subsequent reports.

For the MR-4 metrics, the standard is parity with Verizon retail.

The IP includes 21 trouble report results from MR-4. During the period November 2001 through January 2003, the MR-4 metric accounted for \$522,584 of Verizon’s payments under the incentive plan.<sup>840</sup>

The numerator of MR-4-01 is the sum of the intervals between when the trouble ticket enters into Verizon and when Verizon clears the trouble or restores service to the customer. The numerator includes both out-of-service and service-affecting troubles. For Specials and trunks, the numerator excludes clock “stop time.” The denominator is the number of central office and loop trouble tickets with disposition codes 03, 04, and 05. The formula is:

*MR-4-01- (Sum of trouble clear date and time less trouble receipt date and time for central office and loop troubles)/(Count of central office and loop troubles)*

The numerator of MR 4-02 is the sum of the intervals between when the trouble ticket enters into Verizon’s OSS and when Verizon clears the trouble or restores service to the customer. The numerator includes both OS and SA types of troubles. The denominator is the number of loop troubles with disposition codes 03 and 04. The formula is:

*MR-4-02- (Sum of trouble clear date and time less trouble receipt date and time for loop troubles)/(Count of loop troubles)*

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<sup>839</sup> C2C Guidelines, April 2002, pages 83-85.

<sup>840</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

The numerator of MR 4-03 is the sum of the intervals between when the trouble ticket enters into Verizon’s OSS and when Verizon clears the trouble or restores service to the customer. The numerator includes both OS and SA types of troubles. The denominator is the number of central office troubles with disposition codes 05. The formula is:

*MR-4-03- (Sum of trouble clear date and time less trouble receipt date and time for central office troubles)/(Count of central office troubles)*

The numerator of MR 4-04 is the count of trouble tickets where the interval between when the trouble ticket enters into Verizon’s OSS and when Verizon clears the trouble or restores service to the customer is less than or equal to 24 hours. The numerator includes both OS and SA types of troubles. The denominator is the number of loop and central office troubles with disposition codes 03, 04, and 05. The formula is:

*MR-4-04- (Count of troubles, where the trouble clear date and time less trouble receipt date and time is less than 24 hours)/(Count of central office and loop troubles)*

The numerator of MR 4-05 is the count of the trunk trouble tickets where the interval between when the trouble ticket enters into Verizon’s OSS and when Verizon clears the trouble or restores service to the customer is greater than 2 hours. The numerator includes only OS type troubles. The denominator is the number of trunk trouble tickets with disposition codes 03, 04, and 05. The formula is:

*MR-4-05- (Count of trunk troubles out of service, where the trouble clear date and time less trouble receipt date and time is greater than 2 hours)/(Count of out of service trunks troubles)*

The numerator of MR 4-06 is the count of the trouble tickets where the interval between when the trouble ticket enters into Verizon’s OSS and when Verizon clears the trouble or restores service to the customer is greater than 4 hours. The numerator includes OS type of troubles. The denominator is the number of loop and central troubles with disposition codes 03, 04, and 05. The formula is:

*MR-4-06 (Count of troubles out of service, where the trouble clear date and time less trouble receipt date and time is greater than 4 hours)/(Count of out of service central office and loop troubles)*

The numerator of MR 4-07 is the count of the trouble tickets where the interval between when the trouble ticket enters into Verizon’s OSS and when Verizon clears the trouble or restores service to the customer is greater than 12 hours. The numerator includes OS type of troubles. The denominator is the number of loop and central troubles with disposition codes 03, 04, and 05. The formula is:

*MR-4-07 (Count of troubles out of service, where the trouble clear date and time less trouble receipt date and time is greater than 12 hours)/(Count of out of service central office and loop troubles)*

The numerator of MR 4-08 is the count of the trouble tickets where the interval between when the trouble ticket enters into Verizon’s OSS and when Verizon clears the trouble or restores service to the customer is greater than 24 hours. The numerator includes OS type of troubles. The

denominator is the number of loop and central troubles with disposition codes 03, 04, and 05. The formula is:

*MR-4-08- (Count of troubles out of service, where the trouble clear date and time less trouble receipt date and time is greater than 24 hours)/(Count of out of service central office and loop troubles)*

Liberty selected several MR-4 sub-metrics for detailed examination. Liberty discusses the criteria used to select these measurements in section I.D of this report. The selected measurements are:

- MR-4-07-2100: % Out of service > 12 hours, POTS
- MR-4-04-2100: % All Troubles Cleared within 24 hours, POTS
- MR-4-04-3140: % All Troubles Cleared within 24 hours, UNE Platform
- MR-4-07-3341: % All Troubles Cleared within 12 hours, 2 Wire Digital (Resale)
- MR-4-06-3200: % Out of Service > 12 hours, Specials (UNE)
- MR-4-06-5000: % Out of Service >4 hours , Trunks
- MR-4-07-3343: % Out of Service > 12, 2 Wire xDSL (Line sharing)
- MR-4-05-5000: % Out of Service > 2 hours (Trunks).

## 2. Analysis and Evaluation

The Guidelines require the exclusion of subsequent reports from the MR-4 metrics. Verizon creates subsequent reports in LMOS and stores them in MTAS. Verizon reads subsequent reports into NORD with the ARFLG field populated with an X. In WFAC, Verizon stores subsequent reports in NSDB and downloads to NAMS. Because NAMS is DB2 system subsequent trouble reports are not included in maintenance table.<sup>841</sup> Liberty reviewed Verizon's metric business rules for January 2003 and found that Verizon had properly excluded subsequent reports from its MR-4 sub-metrics. Liberty also reviewed Verizon's filtered files used to report the MR-4 sub-metrics to confirm that Verizon excluded subsequent reports.<sup>842</sup>

Verizon handles the exclusions in the Guidelines for MR-4 for trouble tickets reported by Verizon employees in the course of performing preventive maintenance, Verizon affiliate trouble tickets from CLEC Aggregate data, troubles reported by customers but not found by Verizon in its network, and CPE troubles in the same way as discussed above for other MR metrics. In each case, Liberty evaluated the methods used by Verizon for MR-4 and verified the exclusions through the examination of data files. Liberty concluded that Verizon properly applied these exclusions.

A concern of CLECs is the accuracy of Verizon's trouble tickets that deal with MR-4 mean-time-to-repair. Liberty attempted to evaluate the accuracy of Verizon's mean-time-to-repair records using a CLEC's UNE-P data set, but encountered difficulties matching the data. For a

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<sup>841</sup>Response to Data Request #3, NAMS Software Requirements Specification and Business Transformation Rules for the Network Metrics Platform, p.18.

<sup>842</sup> Response to Data Request #562.

small number of matched records, Liberty found that differences existed between Verizon’s and the CLEC’s determination of mean time to repair. It has been Liberty’s experience that such differences are common and are caused by many factors including differing interpretations of starts and stops, using different clocks, and errors both on the part of the CLEC and ILEC. Recognizing that the small sample provides only anecdotal evidence, the accuracy of Verizon’s M&R data is somewhat in doubt.

To verify that Verizon is properly calculating the MR-4 metric results, Liberty requested Verizon’s unfiltered source files from NORD and NAMS for January 2003. The transformations that Liberty discussed above in the section above on MR- 2 apply to the trouble tickets used in replicating these sub-metrics. Liberty reviewed the algorithms used to calculate each of the sub-metrics and found them consistent with the Guidelines. Liberty used the files to replicate Verizon’s January 2003 MR-4 metrics.

In summary, Liberty reviewed each of the exclusions contained in MR-4 and found that Verizon had properly applied them. Liberty replicated Verizon’s calculation of the sub-metrics and reviewed the filtered files Verizon used for preparing the performance report and found them consistent with its metric business rules. Liberty also found the calculations consistent with the Guidelines. Liberty’s results for MR-4 were consistent with Verizon’s published performance results for January 2003.

## **F. MR-5, Repeat Trouble Reports**

### **1. Background<sup>843</sup>**

The Guidelines define the MR-5 metric as follows:

*The percent of all trouble reports cleared that have an additional (“repeat”) trouble report within 30 days that is found to be a Verizon network trouble (Disposition 03, 04, 05).*

A repeat report is a trouble ticket on the same line, circuit, or trunk as a previous (original) trouble report within the last 30 calendar days. The metrics within MR-5 report the percent repeat reports for the measurement period. For this metric, Verizon reports resale for POTS, 2-wire Digital Services, and 2-wire xDSL services on a regional and statewide basis, while it reports Specials and trunks only statewide. Verizon reports the results for Verizon retail, CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific.

The Guidelines require the following exclusion from the original trouble reports:

- Troubles reported by Verizon employees in the course of performing preventive maintenance where no customer reported trouble.

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<sup>843</sup> Response to Data Request #17, and C2C Guidelines, April 2002.

From the repeat trouble reports, the Guidelines call for exclusions for:

- Troubles reported but not found
- CPE troubles
- Troubles closed due to customer action
- Subsequent reports
- Troubles reported by Verizon employees in the course of performing preventive maintenance where no customer reported trouble.

For the MR-5-01 metric, the standard is parity with Verizon retail.

MR-5-01 reports on the percentage of repeat trouble reports that occurred within the period. The numerator contains the number of central office and loop trouble reports, with disposition codes 03, 04, and 05 that have previous trouble reports within the last 30 days. The denominator is the total number of out-of-service central office and loop troubles. The formula is:

*MR-5-01- (Count of central office and loop troubles that had previous troubles within the last 30 days)/(Count of out-of-service central office and loop troubles)*

Liberty selected several sub-metrics within MR-5 for detailed examination. Liberty discusses the criteria used to select these measurements in section I.D of this report. The selected sub-metrics are:

- MR-5-01-3342: % Repeat Reports within 30 Days, 2-wire xDSL
- MR-5-01-2200: % Repeat Reports within 30 Days, Specials Services
- MR-5-01-3200: % Repeat Reports within 30 Days, Specials Services
- MR-5-01-3341: % Repeat Reports within 30 Days, 2-wire Digital.

For the period November 2001 through January 2003, the MR-5 metric resulted in \$159,768 of incentive payments by Verizon.<sup>844</sup>

## 2. Analysis and Evaluation

MR-5 reports on trouble reports cleared with an additional (repeat) report within 30 days that Verizon determines to be a Verizon network trouble. Verizon indicated that its definition for MR-5 uses the trouble reports that had an additional trouble reported within 30 days of when it closed the original trouble, not within 30 days of when it cleared the original trouble. The clear and close times are almost always different.<sup>845</sup> The NORD manual states: “The number of days between troubles/repeaters is calculated from closed date to closed date”<sup>846</sup> Verizon’s use of the closed date and time versus cleared date and time is contrary to the Guidelines. In this respect, Verizon is not in compliance with the requirements of the Guidelines.

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<sup>844</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>845</sup> Interview #36, April 4, 2003.

<sup>846</sup> Business and Transformational Rules for the Network Metrics Platform, Network Operations Results Database, p.14.

Verizon applies the exclusions for subsequent reports, discovered by Verizon during preventive maintenance, affiliate results from CLEC aggregate, and CPE troubles in the same way as discussed above for other MR metrics. Liberty evaluated Verizon’s methods and examined data files for the application of these exclusions to MR-5 and found that Verizon applied them properly.

The Guidelines require Verizon to exclude troubles reported by customers but not found in Verizon’s network from the “repeat” trouble reports for all MR-5 sub-metrics. This condition occurs when Verizon, either through circuit tests or a technician, determines that the circuit is working properly. For POTS services, closing the trouble ticket requires Verizon to enter a disposition code in the DISP field using disposition codes 07, 08, or 09. For Specials, troubles reported by customers but not found are excluded using the field TRB\_CD. Verizon includes in its metric files only trouble tickets coded FAC or CO. Liberty reviewed the Verizon algorithm for calculating MR-5 metrics and found that it applied the exclusion correctly. Liberty also reviewed filtered files provided by Verizon to ascertain that the exclusion was appropriate.<sup>847</sup> Liberty found that Verizon is applying the exclusion for trouble reported by customers, but not found, consistent with the Guidelines.

Overall, Liberty found that Verizon had correctly applied the exclusions from the original and repeat trouble tickets enumerated in the Guidelines.

Liberty replicated a sample of the MR-5 sub-metrics. Liberty requested Verizon’s unfiltered source files from NORD and NAMS for January 2003. The transformations of NAMS data discussed earlier concerning MR-2 apply to the trouble tickets used in replicating these sub-metrics. Liberty reviewed the algorithms used to calculate each of the sub-metrics and found them consistent with the Guidelines. Liberty used the files to replicate Verizon’s January 2003 MR-5 metrics. Liberty replicated the retail and CLEC aggregate results for the month of January 2003.

## **G. Findings and Recommendations, MR-2 through MR-5**

### **Verizon does not provide adequate quality control over the processing of trouble ticket associated with metrics MR-2 through MR-5.**

Liberty requested copies of all internal audits and studies conducted by Verizon on the preparation of trouble tickets. Verizon had none. Liberty also requested information concerning control over the quality of the inputs provided by customer service representatives. Verizon initially provided copies of evaluations for the RCMC’s customer service representatives. As a result of Liberty’s request, Verizon subsequently provided evaluation summary results for each of the RCMCs for 2001, 2002, and part of 2003. Verizon had not used the information to identify any potential problem areas with regard to the preparation of trouble tickets. This represents a substantial gap in the overall quality controls that Liberty would expect to see in such an important program. In addition, Liberty found that for a small number of records from a CLEC,

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<sup>847</sup> Response to Data Request #572.



the data for mean time to repair differed between the CLEC and Verizon. While this evidence is not conclusive, it may point to problems with the accuracy of Verizon’s underlying M&R data.

**Verizon’s documentation for the MR-2, MR-3, MR-4, and MR-5 metrics is inadequate.**

Verizon had no pre-existing documentation of the trouble ticket process. Liberty’s audit more than half over before Verizon could provide any documentation on how it identifies key metric fields, defines these fields, and calculates the MR metrics. Even when Verizon provided this information, Verizon labeled both the NORD and NAMS documentation as drafts.

**Verizon’s calculation of MR-5 is not consistent with the Guidelines.**

Verizon uses a definition of repeat report that is not consistent with the Guidelines. Verizon measures the 30-day interval from close time to close time instead of using the correct interval of clear time to clear time. Liberty was unable to determine the impact, if any, resulting from Verizon’s using the wrong interval.

Verizon should clarify the Guidelines to address this inconsistency.

## VII. Network Performance Measures

### A. General Background

The Network Performance domain consists of 4 basic performance measures, 14 metrics, and 24 reported results. A total of 7 of the 24 reported results have significance to Verizon’s New Jersey IP. The purpose of Verizon’s reporting in this domain is to indicate the (a) percent of final trunk groups that exceed blocking standards, (b) ability of Verizon to establish and augment collocation arrangements, (c) percent of network outage notices sent within 30 minutes, and (d) percent of NXX updates installed by the LERG effective date.<sup>848</sup>

For the four basic measures, Verizon extracts data from source systems and compiles it in one of five Excel files that it uses to calculate the NP measures. In addition to fundamental information (e.g., state, CLEC), these files contain information required for the calculation of the NP measures. These data include information such as the number of total final trunk groups, the number of final trunk groups experiencing blocking, the types of collocation arrangements ordered, and the total number of network outages reported in the period.<sup>849</sup>

### B. NP-1, Percent Final Trunk Group Blockage

#### 1. Background

The Guidelines define a “Trunk Group” as a set of trunks, traffic-engineered as a unit for the establishment of connections between switching systems, in which all of the paths are interchangeable.<sup>850</sup> Final Trunk Groups (FTGs) do not overflow. The metrics within NP-1 report on FTGs that exceed the blocking design threshold.<sup>851</sup> NP-1 consists of four different metrics and six results reported by product. Verizon reports NP-1 metrics on a statewide basis only. The Guidelines lists the following types of trunks that are not included in NP-1:

- Trunks carrying only interexchange carrier traffic
- Trunks blocked due to CLEC network failure
- Trunks that actually overflow to a final trunk, but are not designated as an overflow trunk
- Trunks blocked where CLEC completion of an order for augmentation is overdue
- Trunks blocked where CLEC has not responded to or has denied Verizon request for augmentation
- Trunks blocked due to other CLEC trunk network rearrangements

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<sup>848</sup> C2C Guidelines, April 2002, Incentive Plan, October 2001, April 2002 (Revised), and response to Data Request #17.

<sup>849</sup> Response to Data Request #17.

<sup>850</sup> C2C Guidelines, April 2002, p. 91.

<sup>851</sup> Overflow occurs when a trunk group cannot handle a call but is able to pass the call on to another trunk group for completion. The blocking design threshold is the amount of overflow that a trunk group is designed for as a percent of the calls offered to the trunk group.

- Trunks blocked because of CLEC failure to timely provide Verizon accurate forecasts of trunking requirements.

Verizon reports NP-1 results by: Verizon common final trunks, CLEC Aggregate – dedicated final trunks, CLEC specific – dedicated final trunks, Verizon affiliate aggregate – dedicated final trunks, and Verizon affiliate specific – dedicated final trunks.

NP-1-01 measures the percent of FTGs exceeding the blocking standard for one month, excluding trunks that block because of CLEC network problems. The formula for NP-1-01 is:

*(Count of Final Trunk Groups that exceed blocking threshold for one month, exclusive of trunks that block due to CLEC network problems)/(Total number of final trunk groups)*

If a FTG is in its second or later consecutive month of blockage, it will not be included in the numerator of NP-1-01.<sup>852</sup>

NP-1-02 measures the percent of final trunk groups exceeding the blocking standard without excluding trunks that block due to CLEC network problems. The formula for NP-1-02 is:

*(Count of Final Trunk Groups that exceed blocking threshold)/(Total number of final trunk groups)*

NP-1-02 includes FTGs that are in their first or any subsequent month of consecutive blockage.<sup>853</sup>

Metrics NP-1-01 and NP-1-02 each report on two separate results, one for common final trunks and one for dedicated final trunks. Essentially by the definition of common trunks, there will be parity performance on them because they carry both Verizon retail and CLEC traffic.

NP-1-03 measures the number of dedicated final trunk groups that exceed blocking standards for two months. This sub-metric has no denominator. It reports on:

*Count of dedicated final trunk groups that exceed blocking threshold, for two consecutive months, exclusive of trunks that block due to CLEC network problems*

There is no standard for metrics NP-1-01, NP-1-02, and NP-1-03.

NP-1-04 measures the number of dedicated final trunk groups that exceed blocking standards for three months. This sub-metric has no denominator. It reports on:

*Count of dedicated final trunk groups that exceed blocking threshold, for three consecutive months, exclusive of trunks that block due to CLEC network problems*

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<sup>852</sup> Response to Data Request #370.

<sup>853</sup> Response to Data Request #371.

Although in its discussion of NP-1-04 the Guidelines discuss blocking for three consecutive months, in fact Verizon’s reporting of NP-1-04 includes FTGs that have blocked for three or more consecutive months. The standard for NP-1-04 is zero (0), *i.e.*, no dedicated final trunk groups should be blocked for three consecutive months. Of the NP-1 sub-metrics, only NP-1-04 is included in the IP. However, during the period November 2001 through January 2003, Verizon made no incentive plan payments related to NP-1-04.

## 2. Analysis and Evaluation

Liberty selected NP-1-04 for detailed examination. Liberty discusses the criteria for making these selections in section I.D of this report. NP-1-04 is the only NP-1 sub-metric with a performance standard.

The *Definition* section of the Guidelines for NP-1 refers to the “*applicable blocking design threshold*.” Liberty confirmed that the blocking threshold Verizon uses for NP-1 for all types of FTGs is 2 percent.<sup>854</sup> Blockage for a FTG is defined as the amount of overflow divided by the peg count, *i.e.*, the number of calls that the FTG could not handle divided by the number of offered calls, expressed as a percent.

Liberty inquired as to whether Verizon weighted each FTG by the number of circuits it carries, or if each FTG is treated the same. Verizon stated that all FTGs are treated the same in the NP-1 calculations. Verizon also confirmed that trunks blocked for reasons other than call volume, *e.g.*, cable cuts or bad weather, are included as blocked in the calculations.<sup>855</sup>

One NP-1 exclusion is “trunks that block as a result of CLEC failure to timely provide to Verizon accurate forecasts of trunking requirements.”<sup>856</sup> CLECs are requested to provide Verizon with two forecasts per year. The February forecast is for the period beginning in the following August, and the August forecast is for the period beginning in the following February. Liberty asked for the information necessary to determine whether a CLEC forecast was “timely” and “accurate.” Verizon responded by referring Liberty to the Verizon wholesale web site.<sup>857</sup> However, Liberty could not find the requested information at that site. Liberty learned that if a CLEC does provide the requested forecasts, whether they prove to be accurate or not, then the forecast exclusion is not applied to that CLEC’s FTGs. If the CLEC does not provide the required forecasts, or if they are not timely, and then there is excessive blockage because of a surge in traffic, the exclusion is applied.

Although it might be inferred that Verizon is continually measuring trunk blockage throughout the month for NP-1 reporting purposes, this is not the case. Following a practice common in the industry, Verizon measures trunk blockage during four-week “study periods.” The study periods only include Monday through Friday of each week. The study period that aligns best with the month being reported on is the one whose results are used for that month.

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<sup>854</sup> Response to Data Request #363.

<sup>855</sup> Interview #23, March 11, 2003.

<sup>856</sup> C2C Guidelines.

<sup>857</sup> Response to Data Request #111.

Blockage is determined using a “time consistent” busy hour that Verizon calculates as follows.<sup>858</sup> For the fourth (most recent) week of the study period, Verizon finds the single one-hour period that had the highest offered load. Verizon then averages the load for all five of those one-hour periods during the week. For example, if the highest offered load was from 10 am to 11 am on Wednesday, Verizon would average the offered load that occurred from 10 am to 11 am during each of the five weekdays in that week. Verizon then makes exactly the same calculation for each of the three other weeks in the study period. Of the resulting averages, Verizon chooses the highest. The one-hour period represented by this highest average is the “time consistent” busy hour. This calculation is made by the switching system software, which also determines what the blockage percent was for each FTG during its busy hour.

Traffic engineers perform the only manual steps required to identify the FTGs that should be included in the numerators of the NP-1 sub-metrics. The engineers perform research on each FTG whose blockage exceeded the 2 percent threshold to determine how long the FTG had been blocked (*e.g.*, one month, two months) and also to determine the cause of the blockage. The latter step is required to decide if any exclusions apply to the FTG.

Liberty requested the raw switch data for December 2002 that are the source of blockage information<sup>859</sup> and the spreadsheets used by the traffic engineers to perform their research.<sup>860</sup> Liberty confirmed that the raw switch data contained no relevant information beyond that available in the spreadsheets. Several fields in these spreadsheets (in addition to the fields that identify the state, month, year, and study period) are important in calculating the NP-1 metric results. The BLKG field provides the blockage percent. The DAYS field contains the number of days during the study period for which there were data about the FTG; thus the number in the DAYS field can be between 0 and 20. The NO DATA field represents the number of consecutive study periods for which the FTG had no data; thus this number can be 0 or greater. These three fields are all populated using data from the switch system. Finally, the STD RMK field contains four characters, all of which the traffic engineers complete. The first character of the STD RMK field is an action code indicating what action Verizon is taking, or will take, to correct the blockage problem. The action codes are important in determining how a FTG is treated in the NP-1 calculation process. These action codes are:<sup>861</sup>

- A – Relief pending
- B – Relief provided
- C – Group under investigation (to determine the required action)
- D – No action required
- E – No data or invalid data (for the study period)
- F – Telecomm carrier dependencies (includes all CLEC-caused blockages)
- G – Third party disruptions (*e.g.*, cable cut by a contractor).

Verizon added the G action code in January 2003 to identify blockages caused by third parties beyond the control of Verizon or other telephone companies. Verizon announced this in change

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<sup>858</sup> Interview #44, April 1, 2003.

<sup>859</sup> Data Request #366.

<sup>860</sup> Data Request #131.

<sup>861</sup> Response to Data Request 367.

control notice CCNJ2002-07593-Net. During an interview,<sup>862</sup> Liberty learned that Verizon planned to exclude from NP-1-01, NP-1-03, and NP-1-04 FTGs that were blocked for G-coded reasons and include them in NP-1-02. Liberty remarked to Verizon that the Guidelines did not appear to support that exclusion, and followed up with a data request inquiring about how Verizon would use the G code.<sup>863</sup> In its original response to that data request, Verizon confirmed its plans to make the exclusion. However, Verizon eventually revised the response and finally agreed that the Guidelines do not permit such an exclusion. The revised response noted that Verizon would issue a new change control notice, CCMSTR2003-08664, to retract the exclusion. The revised response also noted that the G code had not been used since it was created, and that an Engineering Bulletin had been issued notifying trunk capacity engineers not to use the G code until the new change control is implemented.

The second character in the STD RMK field indicates whether the study period data are representative and can be used to engineer the FTG. The third character is a cause code for why the FTG was blocked. The fourth character is the number of consecutive months the FTG was blocked.

Liberty assessed the metric algorithms used by NMP to determine how to account for each FTG based on the contents of the STD RMK field and the other relevant fields in the spreadsheets.<sup>864</sup> The codes for all of the NP-1 sub-metrics exclude FTGs with action codes of E (no valid data) from the numerator. In addition, the codes for NP-1-01, NP-1-03, and NP-1-04 exclude blocked FTGs with action codes of F (CLEC caused) or G (third party caused) from the numerator, while the code for NP-1-02 does not make these two exclusions. The exclusion of F-coded FTGs from the numerators of those three sub-metrics is appropriate, and as noted above Verizon has rescinded the G-coded exclusion.

Liberty assessed the spreadsheets containing the CLEC and Verizon retail data. For the CLEC New Jersey data, Liberty found that there were 175 FTGs. Of these, there were 24 for which there were no data from the December 2002 study period. Of the remaining FTGs, there were two that were blocked with Verizon accountability, both in their first month of blockage. Following Verizon’s procedures,  $2 / 175$ , expressed as a percent, is 1.14 percent, and this is the number in the December 2002 Verizon performance report for NP-01-01 dedicated trunks. Because both of the FTGs were in their first month of blockage, the NP-1-03 and NP-01-4 results were 0 percent for dedicated trunks, again consistent with the December 2002 performance report. A total of six of the 175 FTGs had exceeded the blocking threshold of 2 percent (only two of which were Verizon accountable), and  $6 / 175$  yields the 3.43 percent shown in the December 2002 performance report for NP-01-02 for dedicated trunks.

For the retail data, there were 481 FTGs in New Jersey. All of these FTGs had data for the study period, and all had blanks in the STD RMK field. Following Verizon’s procedures this yields a result of 0.0 percent, and this is the number in the December 2002 Verizon performance report for common trunks for the NP-1-01 and NP-1-02 sub-metrics.

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<sup>862</sup> Interview #40, April 7, 2003.

<sup>863</sup> Response to Data Request #280.

<sup>864</sup> Response to Data Request #369.

Because only NP-1-04 has a standard and is included in the IP, Liberty was interested in assessing a month when the NP-1-04 result was not zero. Liberty learned that the most recent month when this occurred was February 2001. However, Verizon did not implement the current NP-1 calculation and reporting process until March 2002, so the February 2001 results were developed using a different process.

Liberty requested all policies, procedures, guidelines, handbooks, flow diagrams, technical documentation, or other documents that are related to the determination and reporting of performance measures in the Network Performance category.<sup>865</sup> The only information related to NP-1 that Verizon provided in its response was a document that briefly described the fields in the NP-1 data files. Liberty submitted a follow-on data request to confirm that Verizon had provided all the requested documents, and Verizon responded that it had.<sup>866</sup>

### 3. Findings and Recommendations

#### **Verizon is not in verbatim compliance with the Guidelines’ exclusions for NP-1.**

The *Exclusions* section of the Guidelines for NP-1 is not qualified. However, Verizon is not making the same exclusions to all the NP-1 sub-metrics. Verizon excludes FTGs carrying only IXC traffic from both the numerator and denominator of all of the NP-1 sub-metrics. Verizon includes trunks blocked due to CLECs and trunks that overflow to a final trunk but that are not designated as overflow trunks in the denominator of all the NP-1 sub-metrics. Verizon excludes these same trunks from the numerator of all sub-metrics except NP-1-02, which includes them if they meet the blocking criterion.<sup>867</sup>

The *Definitions* section of the Guidelines states that: “*Dedicated final trunks carry local traffic from a Verizon access tandem to a CLEC.*” There are other types of dedicated final trunks as well, e.g., final two-way dedicated trunks and 911 trunks. However, as the sentence quoted above might be read to imply, Verizon is only reporting on dedicated trunks that deliver traffic to the CLECs. Thus, Verizon excludes two-way dedicated trunks, 911 trunks, operator services trunks, choke trunks, and signaling trunks from the NP-1 results, although the *Exclusions* section of the Guidelines do not note this.<sup>868</sup>

As noted above, Verizon published Change Control Notification #CCNJ2002-07593-Net in February of 2003 to implement a “G” action code to identify final trunk groups that blocked due to third party actions. Verizon has finally agreed that this exclusion is inappropriate given the Guidelines for NP-1.

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<sup>865</sup> Response to Data Request #4.

<sup>866</sup> Response to Data Request #102.

<sup>867</sup> Responses to Data Requests #113, #362, #362 revised, and #364.

<sup>868</sup> Interview #31 conducted on 3/11/03.

Liberty recommends that Verizon request a revision to the *Exclusions* section of the Guidelines for NP-1 to state clearly which exclusions are made to which of the NP-1 sub-metrics, and whether they are made to the denominator or only to the numerator.

**Verizon overstates its results for NP-1 by including trunks with no or invalid data in the denominator.**

If the results of a study period for a particular FTG yield no data, or if they yield invalid or non-representative data, then Verizon still includes that FTG in the denominator when calculating NP-1 metric results for the month.<sup>869</sup> However, such a FTG will never be included in the numerator, regardless of whether it actually exceeded its blocking threshold during the month. This practice treats FTGs with no data the same as those that had data and were not blocked beyond the threshold, thus inappropriately improving Verizon’s reported NP-1 performance results. For example, if FTGs without data were excluded from the denominator of the December 2002 performance results, the NP-1-01 result for dedicated trunks would be  $2/(175-24) = .0132$  or 1.32 percent rather than the reported 1.14 percent, and the result for NP-1-02 for dedicated trunks would be  $6/(175-24) = .0397$  or 3.97 percent rather than the reported 3.43 percent.

Liberty recommends that Verizon exclude FTGs with no data from both the numerators and the denominators of all of the NP-1 metric results.

**Verizon has essentially no documented policies, procedures or guidelines that govern how the NP-1 metric results are to be developed and calculated.**

Liberty recommends that Verizon develop and document detailed methods and procedures for the calculation and reporting of NP-1. This is particularly important for this measure because of the manual steps in Verizon’s process.

## **C. NP-2, Collocation Performance**

### **1. Background**

The metrics within NP-2 report Verizon’s performance in responding to requests for collocation and in establishing collocation arrangements. Verizon reports results for the following sub-metrics within this measure:

- Percentage of on-time responses to requests for collocation
- Average interval by type of collocation arrangement (e.g., physical, SCOPE, CCOE, and virtual)<sup>870</sup>

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<sup>869</sup> Response to Data Request #489. Also, the response to Data Request #365, which asked about FTGs for which there were insufficient study period data, must be carefully interpreted. That response, which said that Verizon never excludes any trunk group due to lack of data, is referring to the denominator only.

<sup>870</sup> SCOPE stands for Secured Collocation Open Physical Environment and CCOE stands for Cageless Collocation – Open Environment.



- Percentage of on-time completions
- Average delay days experienced.

Verizon reports separate results for new and augmented applications. Given the types of applications and types of collocation arrangements, there are 16 individual sub-metrics within NP-2.

The exclusions that apply to NP-2 are:

- Interval stops for “time-outs” specified in the “Forecasting Guidelines,” implementation schedules, or Verizon tariffs or interconnection agreements (including, but not limited to, a CLEC failure to make payment when due).
- Interval stops for CLEC milestone misses (including, but not limited to, a CLEC failure to make a payment when due).

Verizon reports NP-2 results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. For the NP-2-01 and NP-2-07 metrics, the standard is 95 percent on time. There are no standards for any of the other NP-2 metrics. There are four reported results within NP-2 that are relevant to Verizon’s IP.<sup>871</sup>

## **2. Analysis and Evaluation**

Verizon receives the majority of collocation applications via email, although CLECs submit some by mail. Verizon considers requests for collocation as engineered projects, and records information on these requests in its Customer Business Services/Customer Network Engineering (CBS/CNE) system, which Verizon uses to track engineering jobs (such as installing and removing equipment) and to place and track orders with vendors.<sup>872</sup>

The collocation application team in Boston, MA is responsible for inputting data on each collocation application into the CBS/CNE database. This team records all milestone dates associated with application processing, up to the point where Verizon gives a due date to the CLEC. The Local Collocation Coordinator (LCC), a region-specific project manager, is responsible for inputting all information associated with the actual building of the arrangement, up to the time that Verizon turns the arrangement over to the CLEC.<sup>873</sup>

New Jersey Tariff B.P.U. No. 4 allows Verizon 15 business days after receipt of a collocation application to confirm whether space is available to accommodate the CLEC’s request. If an application is deficient, Verizon must specify in writing, within 8 business days, the information that the CLEC must provide in order to complete the application. The tariff allows Verizon an interval of 90 business days to complete physical collocation arrangements (which include physical and SCOPE), an interval of 60 business days to complete virtual arrangements, and

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<sup>871</sup> These are NP-2-01-6110, NP-2-01-6120, NP-2-07-6110, and NP-2-07-6120.

<sup>872</sup> According to the response to Data Request #4, the CBS/CNE system is the source for all data for NP-2 metrics for Verizon East (formerly Bell Atlantic) states.

<sup>873</sup> Response to Data Request #260.

intervals of 76 days and 105 days for CCOE secured and CCOE unsecured arrangements, respectively.

In some cases, Verizon offers a CLEC a scheduled due date for completion that is sooner than that required under the tariff. If Verizon misses this date, it considers the application a miss (under NP-2-07 and NP-2-08), even if it completed the request within the interval allowed under the tariff. In rare instances, Verizon offers the CLEC a scheduled due date beyond that in the tariff, such as in cases where it finds asbestos in a central office that requires remediation before installation can proceed. Verizon would, in such cases, notify the CLEC of the reason for the delay, and measure itself based on the extended interval.<sup>874</sup> Verizon would note the reason for the delay in the CBS/CNE system, but would not treat it as a “stop clock” event. Verizon’s practices for assigning completion due dates are not, however, documented.

Under the tariff, the completion interval begins with payment by the CLEC of space and facility fees. Currently, Verizon does not wait for receipt of these fees from the CLEC to initiate the implementation timeline.<sup>875</sup> Verizon has not implemented the forecasting clause of Tariff No. 4 for requests in New Jersey.<sup>876</sup> Verizon therefore does not currently capture “time-outs” (*i.e.*, extensions to the standard intervals due to non-receipt of collocation forecasts) for New Jersey requests.

If there are delays on a job for CLEC reasons, Verizon puts a “stop clock” on the order until the issue is resolved. Verizon provided Liberty with a listing of the valid stop clock codes, which cover situations such as when there is a delay in the CLEC’s equipment installation or when Verizon has completed a job and is waiting for the CLEC to review and accept the installation.<sup>877</sup> Verizon records the reason for the delay and the start and stop dates for the delay in CBS/CNE, and subtracts any CLEC-caused delays when it calculates the completion interval.

Verizon provided to Liberty its business rules document covering the present method of preparing the NP-2 metrics.<sup>878</sup> The business rules document did not adequately describe how Verizon calculates the metrics, and was more of a systems document that outlined the major processing steps (*e.g.*, data extracting, manual calculations) and described the data tables used in calculating the measures. Liberty subsequently had to issue data requests to determine definitions for key data fields, how Verizon calculated certain derived fields, for a valid list of delay codes, for explanations of types of requests excluded from the metrics, and how Verizon actually calculated the metrics.<sup>879</sup> Verizon was unable to provide any pre-existing written documentation in these areas.

There are certain applications tracked in the CBS/CNE system that Verizon does not consider collocation requests to be included in the NP-2 measures. For example, Verizon excludes from

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<sup>874</sup> Response to Data Request #438 and follow-up phone call.

<sup>875</sup> Response to Data Request #438.

<sup>876</sup> Response to Data Request #440. Verizon noted that if it implemented the forecasting clause, it would indicate in the remarks section of the CBS/CNE database that the committed due date had been extended based on tariff allowances.

<sup>877</sup> Response to Data Request #252.

<sup>878</sup> Response to Data Request #4.

<sup>879</sup> See for example Data Requests #252, #258, #313, #314, and #317.

the NP-2 metrics Competitive Alternative Transport Terminal, Collocation Remote Terminal Equipment Enclosure, Feeder Distribution Interconnection Interface, Line Sharing, Shared/Sub-leased Caged, and Transfer of Ownership application types.<sup>880</sup> According to its business rules, Verizon also excludes from the calculation of CLEC results application types that pertain only to Verizon Advanced Data Inc., a Verizon retail entity.<sup>881</sup> These exclusions are reasonable, but Verizon should seek to reflect them in the Guidelines.

Verizon also excludes certain applications not specifically discussed in the Guidelines, *i.e.*, those designated by Verizon as: (1) notice of termination, (2) “records only,” and (3) “reductions.” According to Verizon, a notice of termination is a written notification from a CLEC that it is terminating an existing collocation arrangement. There is no tariff interval associated with a termination because no construction work is required. A reduction is a request from a CLEC to reduce capacity on an existing collocation arrangement. There is no tariff interval associated with reduction applications. Also, CLECs may submit an application for Verizon to update its records on an existing collocation arrangement (such as informing Verizon of additional equipment that the CLEC is planning to add to an existing arrangement) without any physical work required by Verizon. Verizon believes that it appropriately excludes these three application types (which require no work on the part of Verizon) from the metrics because the product types in the Guidelines are for new builds and augmentations.<sup>882</sup> These exclusions are reasonable, but Verizon should seek to reflect them in the Guidelines.

The CBS/CNE system calculates certain key data fields that Verizon uses to calculate the NP-2 metrics. The key data fields for the NP-2-01 metric are the initial response due date, initial response scheduled interval, date of initial response completion, and initial response completion interval. Verizon calculates the date the initial response is due to the CLEC within CBS/CNE by adding 8 business days to the application date. Verizon’s definition is not consistent with the Guidelines, which specify 15 business days.<sup>883</sup> When Liberty questioned Verizon about why it used 8 business days rather than 15, Verizon acknowledged the error and subsequently issued a change control notice to change its metrics algorithm to address this issue.<sup>884</sup>

Verizon calculates the initial response scheduled interval within CBS/CNE as the number of business days between the application date and the date the initial response is due to the CLEC. CBS/CNE calculates the initial response completion date as the earliest of the following (as applicable to a given request): (1) date a cancellation confirmation letter was sent, (2) date a letter is sent to the CLEC with the estimated cost and scheduled completion date, (3) date a letter is sent informing the CLEC that additional time is needed to complete space assessment, (4) date a letter is sent to the CLEC informing it that the choices on the application are not available and

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<sup>880</sup> Response to Data Request #253.

<sup>881</sup> Response to Data Request #315. Verizon excludes application types BANDI, Embedded Base, and VADI from CLEC results (which are database acronyms in the CLEC name data field that identify Verizon Advanced Data Inc.’s collocation requests).

<sup>882</sup> Response to Data Request #313. Also, in the response to Data Request #315, Verizon indicated that it does not include space availability requests, which Verizon Wholesale Services internally generates, because they are not CLEC-generated requests.

<sup>883</sup> Response to Data Request #437 and supplemental response via e-mail dated April 9, 2003.

<sup>884</sup> In CCNJ2003-08463-Net, Verizon indicated that it would change how the initial response due date was calculated within CBS/CNE, making it consistent with the 15 business days specified in the Guidelines.

providing alternative available choices, or (5) date a letter is sent to the CLEC informing it that its requested preference for collocation is not available and giving it the option to be put in a queue for space distribution upon availability in the requested office.<sup>885</sup> Liberty verified that the system was accurately calculating the initial response scheduled interval and the initial response completion date in all cases.

The CBS/CNE system calculates the initial response completion interval as the business days between the application date and the initial response completion date.<sup>886</sup> Verizon does not use stop clocks during the initial response interval.<sup>887</sup> Liberty verified that the system was accurately calculating this interval in business days, taking into account any holidays.

CBS/CNE also calculates key data fields pertinent to the NP-2-02 through NP-2-08 metrics: completion interval, scheduled interval, and delay days. It calculates the completion interval as the number of business days between the completion date and the application start date, minus any delays for CLEC reasons.<sup>888</sup> As Verizon defines it, the completion interval includes the 15-business day window that Verizon has to complete the initial response. Thus, a typical physical collocation would have a completion interval of business 105 days – 15 for the initial response and 90 for the construction phase (even though Verizon currently measures the initial response based upon 8 days). This convention (measuring from application date rather than the start of the actual construction interval) is acceptable once Verizon changes the initial response interval to 15 business days. Liberty verified that the system was accurately calculating the completion interval.

CBS/CNE calculates the scheduled interval as the number of business days between the application date and the scheduled date given by Verizon to the CLEC.<sup>889</sup> Liberty verified that the system was accurately calculating this interval. However, Verizon’s definition for the scheduled interval does not conform to the Guidelines because, as discussed previously, it assigns due dates with the CLEC that are sometimes shorter than (and in rare cases longer than) the intervals in the Guidelines. Liberty recommends that Verizon assign due dates that are consistent with the intervals in the Guidelines (which are consistent with the intervals in the tariff). If Verizon would like to hold itself to a shorter completion interval, Liberty suggests that it seek a modification to the Guidelines to reflect that it should meet the shorter of any promised completion interval or the interval specified in the Guidelines. Similarly, there is no specific language in the Guidelines for special situations where Verizon must extend the interval. In those instances, Verizon should use a “time-out” to record an interval stop, and calculate the completion interval accordingly. Liberty recommends that Verizon seek a clarification to the Guidelines so that can treat such situations as time-outs.

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<sup>885</sup> Response to Data Request #312.

<sup>886</sup> Response to Data Request #312.

<sup>887</sup> Response to Data Request #476. Verizon added that should a CLEC make a change to an application during the initial response period that would alter the space assessment determination, it would revise the start date to the date it received the revised requirements.

<sup>888</sup> Response to Data Request #258. Verizon records start and stop dates for up to three delays in the CBS/CNE data, and CBS/CNE calculates the duration of each delay in business days.

<sup>889</sup> Response to Data Request #258.

For requests that were not on time, CBS/CNE calculates delay days as the difference between the completion interval (which excludes CLEC delays) and the scheduled interval; delay days thus reflect the number of business days the order is late due to Verizon reasons.<sup>890</sup> Liberty was not able to verify the delay day calculation in the CBS/CNE data since there were no applications delayed due to Verizon reasons.

Overall, Liberty found that Verizon appropriately applied the exclusions set forth in the Guidelines. Verizon accurately subtracts stop clocks due to CLEC reasons from its completion interval. Verizon does not currently use “time-outs,” although it may choose to begin doing so to reflect those situations when it must extend the interval for unusual circumstances. The Guidelines specify that Verizon exclude its affiliate data from CLEC aggregate results. Verizon accomplishes this by calculating results for each sub-metric by individual CLEC and by Verizon affiliate, and then aggregating them accordingly in the NMP reporting system.

The calculation of the NP-2 metrics is the responsibility of a metrics specialist located in New York City. The Verizon specialist executes two queries on the CBS/CNE system to extract the required data into two Excel spreadsheet files. Verizon uses one file for calculating on-time responses to request metrics (NP-2-01), and the other for calculating metrics pertaining to completed orders (NP-2-02 through NP-2-07). Verizon uses a macro to calculate the NP-2 metric results, which it then converts into an ASCII file that is sent to the metrics reporting team. Verizon indicated that, starting with March 2003 results reported in April, calculation of the NP-2 results will move to NMP. NMP will receive a direct feed of data from the CBS/CNE database, and a new algorithm will emulate the macro currently being used by the collocation metrics specialist.

Since Verizon has only a small number of collocation requests, Liberty used data from two months, December 2002 and January 2003, for replicating Verizon NP-2 results. Liberty requested that Verizon provide a file of collocation data for applications received from August 1, 2002, through February 7, 2003 (to adequately capture all relevant data for December and January completions).<sup>891</sup> Liberty requested that Verizon extract from CBS/CNE more fields than it typically uses to calculate its measures so that Liberty could check the accuracy of any fields calculated within CBS/CNE.<sup>892</sup> Liberty also requested CLEC-specific and Verizon affiliate-specific results for the two months.<sup>893</sup>

### **NP-2-01 - % On-time Response to Request for Collocation - Total**

NP-2-01 measures the percentage of on-time responses to requests for total collocations (physical, SCOPE, CCOE, and virtual), reported separately by new and augmented collocations.

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<sup>890</sup> Response to Data Request #317.

<sup>891</sup> Liberty had reviewed a prior set of data on completed orders in response to Data Request #257 to determine when orders completed in December and January were initially received to set these dates.

<sup>892</sup> Response to Data Request #311.

<sup>893</sup> Response to Data Request #259.

Liberty examined the algorithm that Verizon uses to calculate the NP-2-01 measure. The formula for the NP-2-01 metric set forth in the Guidelines is as follows:

- Numerator: The number of requests for collocation where the initial response to the request was due in the report period and the initial response was provided on time (as extended for “time-outs” and CLEC milestone misses)
- Denominator: The total number of requests for collocation where the initial response to the request was due in the report period.

Verizon correctly uses all collocation requests for which an initial response was due in the reporting month as the denominator for the measure.<sup>894</sup> To calculate the numerator, Verizon counts the number of requests where the initial response completion interval is less than or equal to the initial response scheduled interval.<sup>895</sup> Verizon includes in the measure completed initial responses for orders that are later cancelled, which is consistent with the Guidelines.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines. However, as noted earlier, Verizon does not accurately assign the initial response due date. If Verizon corrects the issue with the source data, *i.e.*, the initial response due date, then the algorithm should produce results consistent with the Guidelines.

Liberty replicated Verizon’s reported CLEC aggregate results for December 2002 and January 2003 only by using the same incorrect definition for initial response due date. Verizon confirmed that there were no collocation requests by Verizon affiliates for the December and January reporting period.<sup>896</sup>

Liberty notes that, since Verizon has been meeting the shorter interval, its performance results would not change if it recalculated its results based on the 15-business day interval. The change in definition would affect the number of observations, since the requests that are “due” within the reporting month would change.

### **NP-2-02 through NP-2-05 – Average Interval**

The NP-2-02 through NP-2-05 metrics measure the average interval between the start date and completion date for physical, SCOPE, CCOE with Verizon equipment secure, CCOE with Verizon equipment unsecured, and virtual collocations, respectively. Verizon reports the metrics separately for new and augmented applications.

Liberty examined the algorithm that Verizon uses to calculate the NP-2-02 through NP-2-05 measures. The formula for these metrics set forth in the Guidelines is as follows:

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<sup>894</sup> Previously, Verizon had counted all requests with an initial response completion date in the reporting month, rather than those with an initial response due date in the reporting month. Verizon correct this problem during 2002 per CCNJ2002-05028-Net.

<sup>895</sup> Response to Data Request #317.

<sup>896</sup> Response to Data Request #473.

- Numerator: The duration in business days from completion interval start date to completion date for collocation arrangements (of the given type) completed during the reporting period, excluding days for “time-outs” and CLEC milestone misses
- Denominator: The number of collocation arrangements (of the given type) completed during the reporting period.

To calculate the denominator, Verizon selects all collocation requests (by request type) completed in the reporting month. To calculate the numerator, Verizon adds the completion intervals for all completed orders (by request type).<sup>897</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty replicated Verizon’s reported CLEC aggregate results for December 2002 and January 2003, as summarized below:

December 2002 – CLEC Aggregate Average Interval					
		Verizon		Liberty	
		Result	# Obs.	Result	% Obs.
NP-2-02-6120	Physical – augment	9.33	3	9.33	3
NP-2-03-6120	SCOPE – augment	8.00	1	8.00	1
January 2003 – CLEC Aggregate Average Interval					
NP-2-02-6120	Physical – augment	62.00	1	62.00	1
NP-2-03-6120	SCOPE – augment	104.00	1	104.00	1
NP-2-04-6120	CCOE-secured – aug.	76.00	2	76.00	2
NP-2-02-6120	Virtual – augment	74.50	2	74.50	2

Verizon confirmed that there were no collocation requests by Verizon affiliates for the December and January reporting months.<sup>898</sup> Liberty also replicated Verizon’s CLEC-specific results.<sup>899</sup>

### NP-2-07 – % On-Time – Total

NP-2-07 measures the percentage of total collocation applications of all types that are completed by the committed completion date (as extended by “time-outs,” implementation schedules, Verizon tariffs, interconnection agreements, or CLEC misses), reported separately for new and augmented applications. According to the Guidelines, the intervals for completion are (a) 90 business days for physical collocation and SCOPE requests, (b) 60 days for virtual collocation requests, (c) 76 business days for CCOE applications if Verizon equipment is secure, and (d) 105 business days for CCOE applications if Verizon equipment is unsecured.

<sup>897</sup> Response to Data Request #317.

<sup>898</sup> Response to Data Request #473.

<sup>899</sup> Response to Data Request #475 (initial and supplemental).

Liberty examined the algorithm that Verizon uses to calculate the NP-2-07 measure. The formula for NP-2-07 set forth in the Guidelines is as follows:

- Numerator: The number of collocation arrangements completed during the report period on or before the due date, as extended for “time-outs” and CLEC milestone misses
- Denominator: The number of collocation arrangements completed during the reporting period.

To calculate the denominator, Verizon counts all collocation requests (by request type) completed in the reporting month. To calculate the numerator, Verizon counts the number of requests where the completion interval is less than or equal to the scheduled interval.<sup>900</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines. However, as noted earlier, Verizon does not accurately assign the due date to the CLEC in all cases, which affects the scheduled interval. If Verizon corrects the issue with the source data, then the algorithm should produce results consistent with the Guidelines.

Liberty replicated Verizon’s reported CLEC aggregate results for December 2002 and January 2003 for NP-2-07-6120 (augment requests); there were no reported results for new requests.<sup>901</sup> Verizon confirmed that there were no collocation requests by Verizon affiliates for the December and January reporting months.<sup>902</sup> Liberty also replicated Verizon’s CLEC-specific results.<sup>903</sup>

### **NP-2-08 – Average Delay Days - Total**

The NP-2-08 metrics measure the average delay days for collocations requests of all types that Verizon completes late due to Verizon reasons, reported separately by new and augmented requests.

Liberty examined the algorithm that Verizon uses to calculate the NP-2-08 measure. The formula for NP-2-08 set forth in the Guidelines is as follows:

- Numerator: For collocation arrangements completed during the report period that were completed after the due date (as extended for “time-outs” and CLEC milestone misses), the sum of the duration in business days between the due date and actual completion date (excluding days for “time-outs” and CLEC milestone misses).
- Denominator: The number of collocation arrangements completed during the reporting period that were completed after the due date, as extended for “time-outs” and CLEC milestone misses.

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<sup>900</sup> Response to Data Request #317.

<sup>901</sup> Verizon reported a denominator of 4 and 100 percent on-time for December 2002 and a denominator of 6 and 100 percent on-time for January 2003; Liberty’s results were identical.

<sup>902</sup> Response to Data Request #473.

<sup>903</sup> Response to Data Request #475 (initial and supplemental).



To calculate the denominator, Verizon counts all collocation requests (by request type) completed late for Verizon reasons in the reporting month. To calculate the numerator, Verizon sums the delay days for such late completions.<sup>904</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Verizon reported no results for this measure for December 2002 and January 2003, and Liberty verified that there were no completed collocation requests in the data that had delays for Verizon reasons. Verizon confirmed that there were no collocation requests by Verizon affiliates for the December and January reporting months.<sup>905</sup>

### 3. Findings and Recommendations

#### **Verizon’s reported results for the collocation NP-2 performance metrics are accurate but not consistent with the Guidelines.**

Liberty replicated Verizon’s reported performance figures. However, Liberty found that Verizon incorrectly assigns the due date for an initial response to requests for collocation, and recommends that Verizon assign this date based on a 15-business day interval from application date.

Liberty also found that Verizon incorrectly assigns a scheduled completion date with the CLEC. Liberty recommends that Verizon assign this date based on the number of business days indicated in the Guidelines for a given collocation type. Verizon should also seek clarification to the Guidelines regarding “time-outs” to allow for extreme situations in which it requires an extension to the interval. Similarly, should Verizon want to hold itself to a tighter standard for completions, Liberty recommends that Verizon seek clarification to the Guidelines to allow itself to be measured again the shorter of the offered completion interval or the standard interval.

Finally, Liberty recommends that Verizon seek clarification to the Guidelines regarding the types of engineering applications and collocation requests that it excludes from the metrics.

#### **Verizon’s documentation for the NP-2 metrics is inadequate.**

Verizon had no pre-existing written documentation for how it calculated the metrics, how it defined or calculated key data fields, what applications types were included and excluded from the metrics, and which delay codes were valid. Liberty recommends that Verizon expand and update its written documentation for the metrics, and document the business processes that accompany these metrics, such as how it assigns a scheduled due date for completions.

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<sup>904</sup> Response to Data Request #317.

<sup>905</sup> Response to Data Request #473.

## D. NP-5, Network Outage Notification

### 1. Background

The single metric within NP-5 reports on the timeliness of Verizon’s network outage notifications. Specifically, NP-5-01 measures the percentage of network outage event notices that it transmits within 30 minutes after the responsible Verizon work center has determined that a network outage event notice is needed and has commenced the notice process.<sup>906</sup> The network outage event notices included in the measure are only the ones that Verizon sends by electronic mail.

Verizon reports the following outages to CLECs:

- 911: Any disruption of Verizon 911 service regardless of duration.
- IOF/Transport: Failure of one or more T3s for 30 minutes or more. Failure of one or more T3s that support TSP rated services (Defense or FAA Government critical circuits) for 15 minutes or more.
- Switch: Total switch failure for two minutes or more. Partial switch failure involving 5000 or more lines for 30 minutes or more.
- Signaling: SS7 node isolation for five minutes or more. STP or SCP down for two hours or more.
- Power: Any power failure resulting in a major service interruption.
- Fire: Fires resulting in a major service interruption, or having the potential to cause a major service interruption.
- Local Loop/Sub Cable Failure: A subscriber cable failure resulting in 25 or more initial customer reports.

Verizon reports metric NP-5 on a statewide basis. It excludes:

- Notices for CLECs that elect to receive notices on a delayed basis
- Notice to a CLEC that is not ready to receive the notice
- Fax notices.

The standard for NP-5-01 is parity with Verizon retail.

The formula for NP-5-01 is:

*(Number of network outage notices in the reporting period that are transmitted within 30 minutes)/(Total number of network outage notices sent in the reporting period)*

NP-5-01 is included in the IP. However, during the period November 2001 through January 2003, there were no incentive plan payments related to it.

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<sup>906</sup> New Jersey C2C Guidelines, Page 97.

## 2. Analysis and Evaluation

Liberty investigated the exclusions listed in the Guidelines. One exclusion is for CLECs that elect to receive notices on a delayed basis. Liberty confirmed that, as of December 2002, there were no CLECs that had made this election.<sup>907</sup> Another exclusion is for CLECs that are not ready to receive the notice. This exclusion will never apply, because CLECs that elect to receive network outage notices must provide Verizon with an e-mail address.<sup>908</sup>

The *Definition* section of the Guidelines for NP-5 also implicitly includes exclusions, and Liberty investigated those as well. Power failures and fires that result in “major service interruptions” are included in NP-5, but other power failures and fires are not. Verizon stated that power and fire tickets are included in NP-5 when the ticket notes that they are service affecting and when the ticket is categorized as either critical or major.<sup>909</sup> In addition, Verizon stated that a fire on Verizon property housing customer service-impacting equipment would count in NP-5.<sup>910</sup> Local loop or sub cable failures are included in NP-5 only if they result in 25 or more initial customer reports. Liberty confirmed that those reports can come from any combination of CLEC and Verizon customers.<sup>911</sup>

The Guidelines refer to the responsible Verizon work center determining that a network outage event notice is needed and commencing the notice process. Liberty inquired as to how many of these centers there were and learned that there is one 911 center; one network operations center (NOC) for central office, signaling, and interoffice facilities (IOF); one regional power alarm center; and four dispatch centers that handle local loops.<sup>912</sup>

The calculation of NP-5 results depends on the start and end times for each network outage event notice. The start time is when the Verizon work center employee first creates a network outage event ticket in the Abnormal Events Database. The end time is when the Verizon employee submits the ticket, which causes the notice to be transmitted to an e-mail distribution list determined by the Event Type (*i.e.*, the type of outage) and its Distribution Level (*i.e.*, its severity). The notice could be an initial notice, an update/intermediate notice, a restore notice, or a resolution notice depending on the status of the outage.<sup>913</sup> If the “ticket duration” (the end time less the start time) is 30 minutes or less, then the notice is included in the numerator of the NP-5 metric.

Because Verizon sends the e-mailed notices all at the same time, there will always be exact parity between the CLEC and Verizon retail results. Verizon agrees that the NP-5 results have always been at parity and that such parity will always exist.<sup>914</sup>

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<sup>907</sup> Response to Data Request #119.

<sup>908</sup> Response to Data Request #118.

<sup>909</sup> Response to Data Request #121.

<sup>910</sup> Response to Data Request #291.

<sup>911</sup> Response to Data Request #122.

<sup>912</sup> Interview #24, March 3, 2003.

<sup>913</sup> Response to Data Request #289.

<sup>914</sup> Responses to Data Requests #290 and #557.

The NP-5 metric calculation process is manual and not part of NMP. The Manager Performance Analysis, Wholesale Performance Assurance compiles the data for this metric, puts it into an Excel file, and sends it to the data reporters to be loaded into the performance reports.

Although the NP-5 results will always be at parity no matter what calculations Verizon makes, Liberty reviewed the January 2003 NP-5 performance results files.<sup>915</sup> Liberty reviewed the unfiltered file that Verizon manually created from the data in the Abnormal Events Database. This file contained 113 outages, 49 of which had notices transmitted in 30 minutes or less. Liberty then reviewed the filtered file that contains the outages reported in the metric results. Verizon created this file by manually removing duplicate notices from the unfiltered file (*e.g.*, if there was an initial and an update notice for the same outage, Verizon only includes the first notice transmitted) and also removing outages not required by the *Definition* section of the Guidelines (*e.g.*, a switch failure of less than 2 minutes is removed). The resultant filtered file for January 2003 contained 41 outages, of which 35 had notices transmitted within 30 minutes. The quotient of these numbers, 35/41, yields the reported NP-5-01 metric result for January 2003 of 85.37 percent.

Liberty reviewed Verizon’s NP-5 process documentation including its guideline document on how to determine if Verizon should code an outage as critical, major, or minor.<sup>916</sup> Liberty also reviewed the NP-5-01 Review Process document, which lists the steps taken to gather the required data from the Abnormal Events Database and to create the unfiltered and then the filtered file to produce the NP-5-01 metric results.<sup>917</sup> The documents are quite brief, but they do outline the process that Verizon personnel are to follow.

### **3. Findings and Recommendations**

#### **Measure NP-5 will always show parity performance between Verizon retail and CLECs, thus limiting the usefulness of the measure.**

Because Verizon sends out network outage notifications to CLECs and Verizon employees at the same time using an e-mail distribution list, this measure will always be at parity. Thus, although NP-5 is included in the IP, there will never be an incentive payment because the results will always be the same for Verizon retail and CLECs.

The only useful information conveyed by the NP-5 performance results is the actual percent of notices transmitted within 30 minutes. If this percent is not useful in its own right to performance report recipients, then Verizon should request elimination of NP-5 from the report. In any case, including NP-5 in the IP is meaningless.

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<sup>915</sup> Response to Data Request #288.

<sup>916</sup> Response to Data Request #293.

<sup>917</sup> Response to Data Request #4.

### **The Guidelines for NP-5 need clarification.**

If the Board retains NP-5 as a performance measure, then certain clarifications are appropriate. Although the denominator in the Guidelines states: “Total number of network outage notices in the reporting period,” this is not the case because of the *Definition* section of the Guidelines. Verizon may send out a network outage notification for an outage, but subsequently determine that it should not count the outage in the measure, *e.g.*, the T3 failure may have lasted less than 30 minutes (which, because of the *Definition* section of the Guidelines, means the outage should not be included). In this case the outage would not be counted in the measure, even though a notice was sent out. Also, when more than one notice is sent out about an outage, only the first notice transmitted is included in the NP-5-01 metric results.

Although the NP-5 Guidelines contain an exclusion for: “Notice to a CLEC that is not ready to receive the notice,” this will never be the case because notices are all sent by e-mail.

## **E. NP-6, NXX Updates**

### **1. Background**

The single metric within NP-6 measures the timeliness of Verizon’s NXX updates. Specifically, metric NP-6-01 measures the percentage of NXX updates that Verizon installed in its switches by the Local Exchange Routing Guide (*LERG*) effective date. Metric NP-6-01 is measured and reported on a quarterly basis, and is included in Verizon’s Performance Standards calculations for the final month of the quarter.

Verizon reports NP-6-01 on a statewide basis with the standards requiring parity with Verizon retail. Verizon reports NP-6-01 by Verizon retail, CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific.

NP-6-01 excludes:

- NXX updates where the interval between Verizon receipt of the CLEC request for the NXX update and the CLEC requested NXX update installation date is less than the industry standard interval specified by ATIS for requesting an NXX update (including, but not limited to, a requested activation date that is less than 45 days from input of code request information into the LERG).
- Delays in installation of NXX updates caused by the CLEC (including, but not limited to, activation requests with errors or omissions in the LERG, RDBS, or BRIDS, changes in the information entered in the LERG, RDBS, or BRIDS, or delays in assignment of NXX codes or installation of NXX codes caused by the CLEC).

The formula for NP-6-01 is:

*Number of NXX updates in the reporting period that were installed by the LERG effective date)/(Total number of NXX updates in the reporting period)*

NP-6-01 is included in the IP. However, during the period November 2001 through January 2003, there were no incentive plan payments related to it.

## **2. Analysis and Evaluation**

Liberty investigated the exclusions listed in the Guidelines for NP-6 to ensure that their meanings were clear. One of the exclusions is for delays in NXX updates caused by errors or omissions in the data the CLEC enters into the LERG. Liberty asked Verizon to list the data that, if in error, omitted, or changed, would cause it to exclude the NXX update from NP-6. Verizon provided such a list, but Liberty is not reproducing it in this report because it is extensive.<sup>918</sup> However, the list does clearly delineate the exclusion.

Another of the exclusions is for NXX updates where the interval between receipt of the CLEC request and the installation date the CLEC requested is less than the industry standard interval. Liberty confirmed with Verizon that the interval required is still 45 days.<sup>919</sup>

NP-6 measures the percentage of NXX updates that Verizon installed on time. Liberty inquired as to how Verizon interprets the term “installed,” and learned that Verizon considers the term to mean that the NXX codes were loaded (as opposed to meaning that they were both loaded and tested). Liberty also learned that Verizon includes switches that are in conversion when calculating NP-6 metric performance results.<sup>920</sup> Finally, Liberty confirmed that Verizon must have installed the new NXX in all relevant switches for Verizon to consider the update on time.<sup>921</sup>

Telecordia owns the LERG, which all local exchange and interexchange telephone companies access and use. The Business Integrated Routing and Rating Database System (BIRRDs) consists of the old BRIDS and RDBS, both of which are referenced in the Guidelines for NP-6. Two files provide the source data for the NP-6 calculation. One of those files consists of data obtained from the LERG Reference Guide. Verizon generates the other file from its Translations System that tracks NXX loadings. Verizon combines these two files into a spreadsheet that lists every NXX update due to be completed in the quarter. Verizon automated these steps in the process. The spreadsheet also includes two new calculated fields. One field is “Included/Excluded.” The NXX will be “Included” if it meets the 45-day requirement; otherwise it will be “Excluded.” The second field is “Pass/Fail.” An NXX will be “Pass” if Verizon installed it in all the required switches before the LERG effective date; otherwise it will be “Fail.” The manual step in the NP-6 process now occurs in analyzing this spreadsheet. A Verizon engineer must review each NXX categorized as both “Included” and “Fail” to determine the root cause of the missed effective date. The engineer does this through discussions with the Verizon employee assigned to load the NXX and review of related documents. This root cause analysis determines whether Verizon should exclude the NXX from the NP-6 calculation process. A simple arithmetic calculation then produces the numerator and denominator of the NP-6

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<sup>918</sup> Responses to Data Requests #128 and #283.

<sup>919</sup> Response to Data Request #129.

<sup>920</sup> Interview #25, March 11, 2003.

<sup>921</sup> Response to Data Request #127.

performance result. The process is the same for the Verizon NXX updates and for the CLEC NXX updates.

Liberty requested the two source files and the resultant spreadsheet for the quarter ending December 2002. Liberty analyzed them and determined that the spreadsheet was consistent with the source files and that the reported performance results for December 2002 (which showed 100 percent for both Verizon and CLECs) were the ones yielded by the spreadsheet. Because the results were both 100 percent, Liberty also requested the same data for the quarter ending September 2002. Liberty reviewed them and also found them to be consistent and to yield the reported performance results for September 2002 (which were 98.7 percent for CLECs and NA for Verizon).

Liberty requested all policies, procedures, guidelines, handbooks, flow diagrams, technical documentation, or other documents that are related to the determination and reporting of performance measures in the Network Performance category.<sup>922</sup> The only information related to NP-6 that Verizon provided in its response was a document that briefly described the fields in the NP-6 data files. Liberty submitted a follow-on data request to confirm that Verizon had provided all the requested documents, and Verizon responded that they had.<sup>923</sup>

### **3. Findings and Recommendations**

**Verizon has essentially no documented policies, procedures or guidelines that govern how the NP-6 metric results are to be developed and calculated.**

Liberty recommends that Verizon develop detailed methods and procedures for the calculation and reporting of NP-6. This is particularly important for this measure because of the manual steps in Verizon's process.

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<sup>922</sup> Response to Data Request #4.

<sup>923</sup> Response to Data Request #102.

## **VIII. Billing Performance Measures**

### **A. General Background and Summary of Findings**

The Billing domain consists of 8 basic performance measures with 18 sub-metrics, 10 of which are included in Verizon’s Incentive Plan (IP). These measures reflect Verizon’s performance regarding the accuracy and timeliness of carrier bills (BI-2 and BI-3), the timeliness and accuracy of daily usage feeds (BI-1 and BI-4), the accuracy of mechanized bill feeds (BI-5), and the completeness of usage, fractionalized recurring, and non-recurring charges on carrier bills (BI-6, BI-7, and BI-8).<sup>924</sup>

#### **1. Summary of Liberty’s Findings and Recommendations for the BI Domain**

Even though there were errors in Verizon’s methods, Liberty found that Verizon produced generally accurate results for the billing performance measures. Liberty successfully replicated the results for all of the sub-metrics it attempted to recalculate for the February 2003 data month. Liberty also found that Verizon generally follows the Guidelines by correctly applying exclusions and by properly defining the logic and data fields used to calculate the denominators and numerators in the BI metric calculations.<sup>925</sup> Throughout this audit Liberty found the Verizon personnel assigned to work with Liberty on the billing metrics to be knowledgeable and cooperative. After an initial slow start, Verizon was responsive to Liberty’s requests for data.

Liberty’s audit of the billing measures was somewhat hampered by Verizon’s initial inability to produce detailed documentation and to schedule timely interviews needed by Liberty to understand Verizon’s business and metrics calculations processes. For example, although Liberty requested the most up-to-date documentation and metric business rules used to calculate the billing measures as part of its initial December 2002 data request, Verizon did not provide useful documentation until March 18, 2003. Even then, Liberty had to use the December 2002 version of Verizon’s business rules for its analysis. In the “Findings and Recommendations” section of this document, Liberty identifies the problems it discovered with Verizon’s processes and recommends solutions to these problem areas. These problems include findings such as: clarifications needed to the Guidelines so that they conform to an existing process that is appropriate for the calculation of the measure, changes to Verizon’s processes to bring them into conformance with the Guidelines, apparent flaws in the metric logic that are inappropriately excluding records from the metric calculations, and updating Verizon’s documentation to make it more clear and accurate.

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<sup>924</sup> C2C Guidelines, April 2002; IP, October 2001, April 2002 (Revised).

<sup>925</sup> Liberty lists exceptions to this general finding in the detailed “Findings and Recommendations” section of this chapter.



## 2. Verizon's Metrics Data

As part of its audit of Verizon's procedures for processing the BI performance measures, Liberty obtained an overview of Verizon's business processes and systems that generate the data used for these measures. Liberty reviewed how Verizon captures the raw data and whether it collects and reports all relevant data. Liberty sought to determine whether key data field definitions were consistent with the Guidelines and to assess whether Verizon correctly calculated logic flags or any derived values from the source data. Liberty also sought to identify whether there were any significant opportunities for inaccuracies in source data.

Liberty reviewed the process by which Verizon extracts data from its legacy source systems, the Carrier Access Billing System (CABS) and the Customer Record Information System (CRIS), and sends them to the NMP data warehouse.<sup>926</sup> Liberty also reviewed the process by which Verizon extracts data from the NMP warehouse and creates the data tables that its metric algorithms use to process results each month.

Liberty reviewed the programming algorithms that Verizon uses to calculate the BI measures to determine if they produced results that were accurately defined and consistent with the Guidelines. Liberty also examined whether Verizon correctly applied any exclusions specified in the Guidelines. Liberty recalculated the CLEC aggregate and Verizon affiliate results for most of the sub-metric results as an additional check on the reliability of Verizon's results. Some of the BI sub-metrics have a Verizon retail parity standard, and Liberty recalculated the parity results in all cases.

Many of the important data fields that Verizon uses to calculate the BI metrics, such as the number of DUF records sent within a certain number of business days, the amount of usage, fractional-recurring charges, and non-recurring charges that were accrued during the prior two billing periods, and the amount of billing adjustments, are calculated within the various legacy billing systems and merely passed along to NMP. These fields are inherently more difficult to analyze and verify. Liberty intended to obtain information from CLECs in order to track that information through Verizon's system, however Liberty was unable to obtain complete information from any CLEC to do so.

Verizon includes both original and revised final bills in its BI-3, BI-6, BI-7, and BI-8 measures. Verizon indicated that a revised final bill is not a corrected or duplicate bill, but the equivalent of an original bill. If Verizon receives a payment or makes an adjustment after it processes the original final bill, its system creates a revised final bill reflecting the new activity on the account. The billing system will continue to generate revised final bills until the balance is zero or Verizon writes off the account.<sup>927</sup>

As part of its audit of the BI measures, Liberty examined how Verizon applied the exclusions set forth in the Guidelines. The Guidelines indicate that Verizon should exclude its affiliate data

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<sup>926</sup> Previously, Verizon had captured the data for billing metrics in the Billing Metrics Repository (BMR). In its response to Data Request #154, Verizon indicated that it had replaced the metric reporting functionality of BMR with NMP as of March 2002.

<sup>927</sup> Response to Data Request #639.

from CLEC aggregate results for all BI measures. Verizon accomplishes this by calculating results for each sub-metric by individual CLEC and by Verizon affiliate, and aggregating them accordingly in the NMP reporting system. Liberty concluded that Verizon was correctly applying this exclusion.

Although not specified in the Guidelines, Verizon also excludes test CLECs from all the BI measures through the use of a test account indicator flag, which NMP calculates on the basis of a look-up table of test CLEC IDs. This exclusion is reasonable, but Verizon should request a change to the Guidelines to reflect it.

Liberty also found that Verizon excludes VADI bills from its calculation of Verizon retail parity results for BI-3-03, BI-3-06, BI-6-02, BI-7-02, and BI-8-02 sub-metrics.<sup>928</sup> Although this exclusion is reasonable, Verizon should request a change to the Guidelines to reflect it. Verizon also indicated that it excluded bills associated with official accounts, which are those accounts that Verizon uses for corporate or company business.<sup>929</sup> Although this exclusion is also reasonable, Verizon should request a change to the Guidelines to reflect it.

### **3. Verizon’s Documentation**

Verizon slowed Liberty’s progress in the audit of the billing domain because it was initially unable to provide Liberty with adequate documentation. Early on, Verizon did not have documentation available to adequately describe its billing source systems and NMP, the key data fields, derived fields or indicators, how it applied Guideline exclusions, and the structure of the data files that it used to calculate the metrics. It is unclear why Verizon did not have this documentation in place, since it moved the BI metrics to NMP in March 2002.

On March 18, 2003, Verizon produced a large amount of documentation, originally requested by Liberty in December 2002, in preparation for an interview with Liberty scheduled for March 28.<sup>930</sup> In general, this documentation was comprehensive, and covered the billing source systems, data flows from the source systems to the NMP warehouse, the data files that Verizon extracts from NMP to calculate the metrics, as well as definitions of data fields and methods for applying exclusions. However, Liberty subsequently had to issue data requests to clarify certain areas that were either incorrect, or not presented in a clear or complete fashion, in the documentation.

Verizon’s inability to schedule timely interviews and to provide reliable versions of the algorithms that it uses to calculate the BI metrics, the Metric Business Rules, slowed Liberty’s analysis of Verizon’s measures. On February 14, 2003, after conducting an introductory phone interview with Verizon,<sup>931</sup> Liberty requested a face-to-face interview to explore each of the BI measures in more detail.<sup>932</sup> Verizon was unable to satisfy this request until six weeks later on March 28. Additionally, given the lack of up-to-date Metric Business Rules, Liberty’s analysis of

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<sup>928</sup> Response to Data Request #691.

<sup>929</sup> Responses to Data Requests #452 and #652.

<sup>930</sup> Interview #26, March 28, 2003.

<sup>931</sup> Interview #17, February 14, 2003.

<sup>932</sup> Interview Request #26.

Verizon’s algorithms in this report is based on the December 2002 Metric Business Rules. Refer to the introductory section of this report on Verizon’s reporting.

## **B. BI-1, Timeliness of Daily Usage Feed (DUF)**

### **1. Background<sup>933</sup>**

The sub-metrics within BI-1 report the number of business days from the creation of the message to the date that Verizon makes the usage information available to the CLEC on the daily usage feed (DUF). Verizon reports results for the percentage of usage records transmitted within three, four, five, and eight business days; thus there are a total of four individual sub-metrics in this measure group. There are no exclusions in the BI-1 measure except for the standard exclusion of Verizon affiliate data from CLEC aggregate results.

Verizon reports these results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. For the BI-1-01, BI-1-03, and BI-1-04 metrics, there is no standard. For the BI-1-02 measure, the standard is 95 percent of DUF records sent within four business days. Only one of the BI-1 reported results, BI-1-02, is included in Verizon’s IP. This sub-metric accounted for \$135,000 in Verizon payments during the period from November 2001 through January 2003.<sup>934</sup>

### **2. Analysis and Evaluation**

Verizon captures usage information for CLEC customers from the switch, although not all offices poll this usage data every business day. Verizon captures weekend and holiday usage on the next business day, and collects usage data for all CLECs and its own retail customers at the same time.<sup>935</sup>

Verizon uses its BAUI system, a sub-system of CRIS, to process and distribute CLEC resale and UNE DUF files and to calculate certain statistics on those files. Verizon collects information about daily usage feeds in BAUI and sends files daily to NMP for storage in the NMP warehouse.<sup>936</sup> To calculate the metrics, Verizon selects the DUF records from the NMP warehouse that have a transmission date within a given month, and places those records into the Bill MBF DUF Detail Fact table used by Verizon’s metrics algorithm.<sup>937</sup>

The key data fields in the Bill MBF DUF Detail Fact table are the CLEC ID and file transmission date, as well as five day-counter fields that indicate how many DUF records Verizon sent within a given number of business days.

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<sup>933</sup> Response to Data Request #17, and C2C Guidelines, April 2002.

<sup>934</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>935</sup> C2C Guidelines, April 2002.

<sup>936</sup> Response to Data Request #151.

<sup>937</sup> Response to Data Request #631.

The Guidelines define transmission date as:

- The date that Verizon transmits the usage data to the CLEC for data sent electronically
- The date that Verizon is ready to transmit the data electronically if the CLEC is not ready to receive the transmission
- The date that Verizon delivers the usage data to the U.S. postal or other delivery service for usage data that it sends on a tape cartridge.

Verizon records the transmission date in BAUI. The date that BAUI creates the DUF file is the same as the date that Verizon transmits the file, *i.e.*, the file transmission occurs as the next step in the process after file creation.<sup>938</sup> Verizon indicated that all files ready to be sent to the CLECs are included in the measure.<sup>939</sup> Verizon sends only electronic DUF files to the CLECs; it sends none by mail.<sup>940</sup>

The BI-1 measures use the interval between the date that calls are made and recorded at the switch and the transmission date for the DUF file that contains the record of the calls. The BAUI system calculates the number of usage records in a given DUF file that it sent to the CLEC within three, four, five, and eight business days of the date the calls were recorded at the switch. The NMP system creates five records in the Bill MBF DUF Detail Fact table for each DUF record, one indicating the total usage record count in the DUF file (where the day-counter value is 0), and the other four indicating the number of usage records in that file that were sent within three, four, five, or eight business days (where the day-counter fields would be 3, 4, 5, and 8, respectively).<sup>941</sup>

Liberty examined how Verizon applied the exclusions for BI-1 set forth in the Guidelines. As noted previously, Liberty found that Verizon applied them correctly.

### **BI-1-01 – % DUF in 3 Business Days**

Liberty examined the algorithm that Verizon uses to calculate the BI-1-01 measure. The formula for the BI-1-01 metric set forth in the Guidelines is as follows:

- Numerator: The count of usage records on daily usage feed tapes processed during the month, where the difference between measurement date and call date is 3 days or less
- Denominator: The total number of records on DUF tapes processed during the month.

To calculate the denominator for the measure, Verizon sums the number of total usage records in each DUF file sent during the reporting month.<sup>942</sup> To calculate the numerator, Verizon sums the number of usage records in each DUF file that it sent within three business days.<sup>943</sup>

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<sup>938</sup> Response to Data Request #455.

<sup>939</sup> Response to Data Request #456.

<sup>940</sup> Response to Data Request #653.

<sup>941</sup> Response to Data Request #460.

<sup>942</sup> Verizon counts all records in the Bill MBF DUF Detail Fact file that have a day-count indicator of 0, which represents the total number of usage records in a given DUF file.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

#### **BI-1-02 – % DUF in 4 Business Days**

Liberty examined the algorithm that Verizon uses to calculate the BI-1-02 measure. The formula for the BI-1-02 metric set forth in the Guidelines is as follows:

- Numerator: The count of usage records on daily usage feed tapes processed during the month, where the difference between measurement date and call date is four days or less
- Denominator: The total number of records on DUF tapes processed during the month.

To calculate the denominator for the measure, Verizon sums the number of total usage records in each DUF file sent during the reporting month. To calculate the numerator, Verizon sums the number of usage records in each DUF file that it sent within four business days.<sup>944</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-1-02-2030, for February 2003 using the Bill MBF DUF Detail Fact table that Verizon provided.<sup>945</sup> Liberty replicated Verizon’s denominator, as well as the overall result, 99.38 percent.<sup>946</sup>

Verizon reported no results for its affiliates for this measure, and Liberty confirmed that there were no relevant data for these affiliates.

#### **BI-1-03 – % DUF in 5 Business Days**

Liberty examined the algorithm that Verizon uses to calculate the BI-1-03 measure. The formula for the BI-1-03 metric set forth in the Guidelines is as follows:

- Numerator: The count of usage records on daily usage feed tapes processed during the month, where the difference between measurement date and call date is five days or less
- Denominator: The total number of records on DUF tapes processed during the month.

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<sup>943</sup> Verizon counts all records in the Bill MBF DUF Detail Fact file that have a day-count indicator of 3.

<sup>944</sup> Verizon counts all records in the Bill MBF DUF Detail Fact file that have a day-count indicator of 4.

<sup>945</sup> Response to Data Request #463.

<sup>946</sup> Verizon reported a denominator of 159,348,065, and Liberty’s result was identical.

To calculate the denominator for the measure, Verizon sums the number of total usage records in each DUF file sent during the reporting month. To calculate the numerator, Verizon sums the number of usage records in each DUF file that it sent within five business days.<sup>947</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

### **BI-1-04 – % DUF in 8 Business Days**

Liberty examined the algorithm that Verizon uses to calculate the BI-1-04 measure. The formula for the BI-1-04 metric set forth in the Guidelines is as follows:

- Numerator: The count of usage records on daily usage feed tapes processed during the month, where the difference between measurement date and call date is eight days or less
- Denominator: The total number of records on DUF tapes processed during the month.

To calculate the denominator for the measure, Verizon sums the number of total usage records in each DUF file sent during the reporting month. To calculate the numerator, Verizon sums the number of usage records in each DUF file that it sent within eight business days.<sup>948</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-1-04-2030, for February 2003 using the Bill MBF DUF Detail Fact table that Verizon provided.<sup>949</sup> Liberty replicated the overall result reported by Verizon, 99.95 percent.

Verizon reported no results for its affiliates for this measure, and Liberty confirmed that there were no relevant data for these affiliates.

## **C. BI-2, Timeliness of Carrier Bill**

### **1. Background**

The two sub-metrics within BI-2 report the percentage of bills sent to the carrier within ten business days of the bill date. Verizon uses BI-2 to report its carrier bill timeliness results by bill medium *i.e.*, paper bills and electronic bills. The Guidelines define the bill date as the end of the billing period for recurring, non-recurring, and usage charges, and specify that Verizon report performance based on the bill of record. The Guidelines require that Verizon exclude from this measure any bills delayed at the request of the billed carrier.

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<sup>947</sup> Verizon counts all records in the Bill MBF DUF Detail Fact file that have a day-count indicator of 5.

<sup>948</sup> Verizon counts all records in the Bill MBF DUF Detail Fact file that have a day-count indicator of 8.

<sup>949</sup> Response to Data Request #463.

Verizon reports these results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. The standard for both metrics is 98 percent in ten business days. The Verizon IP includes both of the BI-2 reported results. Verizon did not make any IP payments related to BI-2 during the period from November 2001 through January 2003.<sup>950</sup>

## 2. Analysis and Evaluation

Verizon collects information about bills in CABS and in its Bill Reformat System (BRS), a component of CRIS, and sends files weekly to NMP for storage in the NMP warehouse.<sup>951</sup> Verizon captures information on all versions of a CLEC bill (paper and electronic) that can be sent in more than one bill format. Each CLEC typically has numerous bills separately identified by individual account key numbers. To calculate the metrics, Verizon selects the relevant billing records from the NMP warehouse that have a bill distribution date within a given month, and places those records into the Bill Timeliness Fact table used by Verizon’s metrics algorithm.<sup>952</sup>

The key data fields in the Bill Timeliness Fact table are the CLEC ID, account key (which identifies separate CLEC accounts), bill distribution date, bill date, bill media (paper or electronic), electronic bill format (BOS BDT<sup>953</sup> or other types), on-time indicator, and e-bill indicator. Verizon calculates the on-time indicator within NMP. If the difference between the bill distribution date and the bill date is ten business days or less, Verizon assigns a Y to this field, otherwise it assigns a N.

CLECs can receive more than one version of their bill, and Verizon analyzes the bills to assure that it reports only the bill of record in the results. Verizon assigns one of three possible values to the e-bill indicator field, Y, N, or X.<sup>954</sup> Verizon uses a database procedure within NMP to identify e-bill accounts through the use of a look-up table of CLEC master account numbers and individual account keys.<sup>955</sup> Verizon uses an e-bill indicator value of Y to indicate that the bill of record for the CLEC account is electronic. Verizon uses a value of N to indicate that the bill is not an e-bill account. Verizon will include a paper bill in the BI-2-01 measure as long as the paper bill was the CLEC’s bill of record. Verizon uses the value of X in the e-bill indicator field to signify that an account bill in paper format should not be included in the measure because the account has an associated BOS BDT format electronic bill that Verizon will report.

In order for the reported results to be consistent with the Guidelines’ language that performance should reflect the bill of record, Verizon’s process should ensure that no more than one bill of record for each CLEC account be included in the BI-2 metrics. Similarly, Verizon should be reporting on a bill of record for each CLEC. While examining the Bill Timeliness Fact table data,

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<sup>950</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>951</sup> Responses to Data Requests #151 and #452.

<sup>952</sup> Response to Data Request #644.

<sup>953</sup> BOS is an industry billing format standard, commonly referred to as BOS BDT. Verizon also produces electronic bills in Bell Atlantic Regenerated Media (BARM) and Power Bill formats.

<sup>954</sup> Response to Data Request #454.

<sup>955</sup> Response to Data Request #623.

Liberty found that there were certain CLEC accounts that Verizon would not reflect in either BI-2 metric, such as when the account is an e-bill account but Verizon sends the bill in a format other than BOS BDT. This situation is consistent with the Guidelines, since Verizon is to measure only BOS BDT electronic bills.

Liberty found 8 cases where Verizon assigned an e-bill indicator value of X (*i.e.*, the bill should not be included in the metric since there is another bill in BOS BDT electronic format that will be included), but there was no other BOS BDT electronic bill in the Bill Timeliness Fact data for that account.<sup>956</sup> In these cases, Verizon reported no bill of record for the CLEC account in either BI-2 metric. Verizon indicated that it may have a logic problem within its metrics processes, and that NMP may not have received the data for the electronic bill.<sup>957</sup> Liberty has therefore concluded that Verizon is likely under-reporting results for the BI-2-02 metric. In the case of the February 2003 results for BI-2-02, Verizon did not report eight electronic BOS BDT bills in its denominator. Liberty cannot determine the effect on the reported results of these eight bills because it could not determine if Verizon sent them on time. Liberty recommends that Verizon investigate this issue and change its process to ensure that a bill of record for each CLEC account is included in one of the BI-2 metrics.<sup>958</sup>

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Liberty found that Verizon correctly applied the exclusion for Verizon affiliate data. The Guidelines also specify that Verizon should exclude any bill whose transmission Verizon delayed at the request of the CLEC. Verizon indicated that, if a CLEC requests delayed billing, Verizon diverts the bills from the normal production flow, does not send data on these bills to NMP, and does not report the bills in the metrics.<sup>959</sup>

### **BI-2-01 – Timeliness of Carrier Bill – Paper Bills**

Liberty examined the algorithm that Verizon uses to calculate the BI-2-01 measure. The formula for the BI-2-01 metric set forth in the Guidelines is as follows:

- Numerator: The number of paper carrier bills sent to the CLEC within ten business days of the bill date
- Denominator: The total number of paper carrier bills distributed.

To calculate the denominator for the measure, Verizon counts the number of bill of record paper carrier bills that it distributed during the reporting month.<sup>960</sup> To calculate the numerator, Verizon counts the number of these bills that it sent within ten business days of the bill date.<sup>961</sup>

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<sup>956</sup> Liberty found that there were 597 CLEC paper bills relevant to the BI-2-01 measure in February, and Verizon excluded 98 because they had an e-bill indicator of X.

<sup>957</sup> Response to Data Request #620.

<sup>958</sup> Liberty recognizes that CLECs with an electronic bill of record in a format other than BOS BDT would not be included.

<sup>959</sup> Responses to Data Requests #465 and #654.

<sup>960</sup> Verizon counts the number of bills in the Bill Timeliness Fact table that have a bill media indicator of paper and an e-bill indicator of N.

<sup>961</sup> Verizon counts the number of bills identified for the denominator that have a bill period indicator of Y, which indicates the bill was sent within 10 business days of the bill date.



Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-2-01-2030, for February 2003 using the Bill Timeliness Fact table that Verizon provided.<sup>962</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>963</sup>

Liberty also recalculated the aggregate Verizon affiliate results, and replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>964</sup>

#### **BI-2-02 – Timeliness of Carrier Bill – Electronic Bills BOS BDT Format**

Liberty examined the algorithm that Verizon uses to calculate the BI-2-02 measure. The formula for the BI-2-02 metric set forth in the Guidelines is as follows:

- Numerator: The number of electronic carrier bills (BOS BDT) sent to the CLEC within 10 business days of the bill date
- Denominator: The total number of electronic carrier bills distributed (BOS BDT format).

To calculate the denominator for the measure, Verizon counts the number of bill of record electronic carrier bills in BOS BDT format that it distributed during the reporting month.<sup>965</sup> To calculate the numerator, Verizon counts the number of these bills that it sent within ten business days of the bill date.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-2-02-2030, for February 2003 using the Bill Timeliness Fact table that Verizon provided.<sup>966</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>967</sup>

Verizon reported no results for its affiliates for this measure, and Liberty confirmed that there were no relevant data for these affiliates.

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<sup>962</sup> Response to Data Request #463.

<sup>963</sup> Verizon reported a denominator of 499 and Liberty’s result was identical.

<sup>964</sup> Verizon reported a denominator of 5 and Liberty’s result was identical.

<sup>965</sup> Verizon counts the number of bills in the Bill Timeliness Fact table that have a bill media indicator of electronic that also have a bill format of BOS BDT. Verizon also includes only those that have an e-bill indicator of Y.

<sup>966</sup> Response to Data Request #463.

<sup>967</sup> Verizon reported a denominator of 161 and Liberty’s result was identical.

## **D. BI-3, Billing Accuracy**

### **1. Background**

The three sub-metrics within BI-3 report the percentage of carrier bills that Verizon adjusted due to its own billing errors. The Guidelines specify that Verizon report performance based upon the bill of record. The first two sub-metrics pertain to paper bills, and reflect the percentage of billing adjustments both including and excluding any adjustments resulting from ordering activity post completion discrepancies.<sup>968</sup> The third sub-metric pertains to the accuracy of electronic bills in BOS BDT format, and excludes any adjustments resulting from order activity post completion discrepancies. The Guidelines require that Verizon exclude from all BI-3 measures adjustments that are not billing errors, such as charges for directories and incentive regulation credits.

Verizon reports these results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. Verizon also reports retail parity results for BI-3-03 and BI-3-06. For metric BI-3-01 there is no standard. For the BI-3-03 and BI-3-06 metrics, the standard is parity with Verizon retail. Two of the BI-3 reported results, BI-3-03 and BI-3-06, are relevant to Verizon’s IP. Verizon made IP payments of just under \$150,000 related to BI-3 for the period from November 2001 through January 2003.<sup>969</sup>

### **2. Analysis and Evaluation**

Verizon collects bill detail information for New Jersey CLECs in its CABS South system and in its Flexible Billing System (FBS), a component of CRIS, and sends files daily to NMP for storage in the NMP warehouse.<sup>970</sup> To calculate the denominator for the metrics, Verizon selects the relevant billing records from the NMP warehouse that have a bill date within a given month, and places those records into the Bill Detail Fact table used by Verizon’s metric algorithms.<sup>971</sup>

Because of the large number of retail billing records, Verizon has a separate process for aggregating its retail records prior to moving the data to the Bill Detail Fact table. Verizon aggregates records by state, record type, system ID, and bill date.<sup>972</sup> For example, Liberty found in its examination of the Bill Detail Fact table that Verizon had consolidated roughly 3.5 million retail billing records into roughly 150 records in the table. Verizon excludes electronic bills from its retail data, because the only choice for bill of record in retail is paper.<sup>973</sup>

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<sup>968</sup> Order activity post completion discrepancies are instances where a completed order cannot be processed automatically by the normal billing systems and instead drops out for manual handling. Once an order has been completed, Verizon’s service order processor sends a message to the billing systems to update a customer’s billing records. If the billing system cannot reconcile the order with the customer’s record (such as an order to remove a feature that the customer’s record indicates does not exist), then the completed order will drop out for manual processing.

<sup>969</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>970</sup> Response to Data Request #151.

<sup>971</sup> Response to Data Request #642.

<sup>972</sup> Response to Data Request #448.

<sup>973</sup> Responses to Data Request #640 and #641.

Verizon collects information on billing adjustments in its Customer Account File System (CAFS) and in its CABS South system and sends files daily to NMP for storage in the NMP warehouse.<sup>974</sup> To calculate the numerator for the metrics, Verizon selects the relevant billing adjustment records from the NMP warehouse that have an adjustment date within a given month, and places those records into the Bill Adjustment Fact table used by Verizon’s metrics algorithm.<sup>975</sup>

Verizon does not send information about all billing adjustments to NMP. Verizon indicated that it has over 3,000 codes to identify types of adjustments.<sup>976</sup> Verizon uses screening processes within CRIS and CABS to extract only certain adjustments relevant to the metric. The Verizon personnel in the Wholesale Customer Claims Center are responsible for assigning the adjustment codes used on CLEC bills.<sup>977</sup>

The key data fields in the Bill Detail Fact table are the CLEC ID, account key (which indicates the individual CLEC accounts), bill date, bill amount, and e-bill indicator. Liberty confirmed that Verizon uses the total bill amount, and not total current charges, as the bill amount.<sup>978</sup> The record type field indicates the type of charges (*e.g.*, usage, total bill charges) that are contained on a given billing record.

The key data fields in the Bill Adjustment Fact table are the CLEC ID, account key, adjustment date, adjustment amount, and e-bill indicator. When calculating the BI-3 metrics, Verizon selects billing adjustments that have an adjustment date within the reporting month for the numerator, but selects bills with a bill date during the reporting month for the denominator. Under Verizon’s approach, the bill adjustments in the numerator do not necessarily relate to the same population of bills in the denominator. The Guidelines do not specifically state how Verizon should define the reporting month. Verizon’s definition is reasonable, but it should request a change to the Guidelines to reflect it. In its January 2003 petition to the Board, Verizon noted the same mismatch of numerator and denominator.<sup>979</sup> Verizon suggested that Board replace the BI-3-01 and BI-3-03 metrics with alternative measures that it introduced on an interim basis in New York.

Verizon assigns each CLEC account in the Bill Detail Fact and Bill Adjustment Fact table an e-bill indicator of either N to indicate a paper bill of record, or Y to indicate an electronic bill of record. Liberty concluded that Verizon appropriately bases the BI-3 measures on CLEC bills of record. However, Verizon does not check if the electronic bills are in BOS BDT format, as it does for the BI-2 metrics.<sup>980</sup> Liberty has therefore concluded that Verizon is over-reporting the

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<sup>974</sup> Response to Data Request #151.

<sup>975</sup> Response to Data Request #643.

<sup>976</sup> Response to Data Request #450.

<sup>977</sup> Response to Data Request #451.

<sup>978</sup> Response to Data Request #638. Verizon completed a change control to now use total charges rather than current charges.

<sup>979</sup> Petition of Verizon New Jersey Inc. to Modify Certain Carrier to Carrier Performance Measurements and Standards, January 13, 2003, Docket No. TX95120631 and TX98010010.

<sup>980</sup> In its response to Data Request #623, Verizon provided the logic it uses to assign the e-bill indicator field. Verizon checks for bill type (BOS BDT) only in the billing records relevant to the BI-2 metrics.

denominator for the BI-3-06 metrics, since it does not exclude electronic bills that are not in BOS BDT format. Liberty is unable to estimate the effect on reported results, since Verizon does not include electronic bill format information in the Bill Detail Fact table. Liberty recommends that Verizon change its method to correct this error.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. The Guidelines specify that Verizon should exclude adjustments that are not billing errors, *e.g.*, charges for directories, incentive regulation credits, performance assurance plan payments, out of service credits, and special promotional credits. Although not explicitly stated in the Guidelines, this applies only to the numerator of the BI-3 measures. Verizon applies a screening process to select only certain billing adjustments, which it then sends from the legacy systems to NMP.

For BI-3-03 and BI-3-06, the Guidelines specify that Verizon should exclude charges adjusted due to billing errors resulting from order activity post completion discrepancies (PCDs). Verizon indicated that PCDs happen when the information in the customer service records does not match the order, and the order drops out for manual processing by Verizon’s National Marketing Center (NMC) representatives. In those cases, the representative would create a PCD billing record. Examples of PCD situations are if a CLEC ordered a removal of a feature that did not show up as being on its account, or if it ordered a disconnection for a line that did not show up on its customer record. Verizon correctly excludes such PCD records from these sub-metrics in its algorithm by filtering out the PCD billing records created by the service representatives.

### **BI-3-01 – % Billing Adjustments – Including Charges Adjusted due to Billing Errors Resulting from Order Activity PCDs (Paper Bills)**

Liberty examined the algorithm that Verizon uses to calculate the BI-3-01 measure. The formula for the BI-3-01 metric set forth in the Guidelines is as follows:

- Numerator: The total dollars adjusted for billing errors (CRIS paper and CABS paper bills, including PCDs)
- Denominator: The total dollars billed (CRIS paper and CABS paper bills, including PCDs).

To calculate the denominator for the measure, Verizon sums the bill amounts for paper bills with bill dates during the reporting month in the Bill Detail Fact table.<sup>981</sup> Verizon includes all bill amounts, including any related to PCDs. To calculate the numerator, Verizon sums all adjustment amounts in the Bill Adjustment Fact table for paper bills where the adjustment date is within the reporting month.<sup>982</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

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<sup>981</sup> Verizon counts the bill amount in the Bill Detail Fact table that have an e-bill indicator of N.

<sup>982</sup> Verizon sums the adjustments that have an adjustment date within the reporting month and that have an e-bill indicator of N.

Liberty recalculated the CLEC aggregate result, BI-3-01-2030, for February 2003 using the Bill Detail Fact table and Bill Adjustment Fact table that Verizon provided.<sup>983</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 0.57 percent.<sup>984</sup>

During replication, Liberty initially calculated a different numerator from the one implied by Verizon’s reported result. Verizon subsequently clarified that it had implemented a process to make manual adjustments to the BI-3-01 and BI-3-03 results calculated by the algorithms.<sup>985</sup> Verizon recalculates the results after manually subtracting from the numerator certain incentive regulation credits and volume term discount adjustments that it had improperly coded. This correction is consistent with the types of adjustments that the Guidelines indicate Verizon should exclude from the metrics.

Liberty also recalculated the Verizon aggregate affiliate result, and Liberty replicated Verizon’s reported denominator, as well as the overall result of 0 percent.<sup>986</sup>

### **BI-3-03 – % Billing Adjustments – Excluding Charges Adjusted due to Billing Errors Resulting from Order Activity PCDs (Paper Bills)**

Liberty examined the algorithm that Verizon uses to calculate the BI-3-03 measure. The formula for the BI-3-03 metric set forth in the Guidelines is as follows:

- Numerator: The total dollars adjusted for billing errors (CRIS paper and CABS paper bills, excluding PCDs)
- Denominator: The total dollars billed (CRIS paper and CABS paper bills, excluding PCDs).

To calculate the denominator for the measure, Verizon sums the bill amounts for paper bills with bill dates during the reporting month in the Bill Detail Fact table. Verizon includes all bill amounts, but excludes any related to PCDs.<sup>987</sup> To calculate the numerator, Verizon sums all non-PCD adjustment amounts in the Bill Adjustment Fact table for paper bills where the adjustment date is within the reporting month.<sup>988</sup> Verizon calculates the retail parity result using the same method to determine a numerator and denominator. Verizon makes the same manual adjustment to the BI-3-03 result that Liberty discussed under BI-3-01.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

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<sup>983</sup> Response to Data Request #463.

<sup>984</sup> Verizon reported a denominator of \$52,990,724, and Liberty’s result was identical.

<sup>985</sup> Response to Data Request #646. For February 2003, Verizon subtracted from the NMP calculated numerator \$44,349 in incentive payments that had been incorrectly coded.

<sup>986</sup> Verizon reported a denominator of \$673 and Liberty’s result was identical.

<sup>987</sup> Verizon uses the record type field in the Bill Detail Fact table to select only those non-PCD records.

<sup>988</sup> Verizon uses the record type field in the Bill Adjustment Fact table to select only those non-PCD records.

Liberty recalculated the CLEC aggregate result, BI-3-03-2030, for February 2003 using the Bill Detail Fact table and Bill Adjustment Fact table data that Verizon provided.<sup>989</sup> Liberty replicated Verizon’s reported denominator, as well as Verizon’s reported result of 0.57 percent.<sup>990</sup>

Liberty recalculated the retail parity result for this metric. Liberty replicated Verizon’s reported denominator, as well as the overall result of 0.98 percent.<sup>991</sup> Liberty also recalculated the Verizon aggregate affiliate result, and Liberty replicated Verizon’s reported denominator, as well as the overall result of 0 percent.<sup>992</sup>

**BI-3-06 – % Billing Adjustments – Electronic Bills BOS BDT Format  
(Excluding Charges Adjusted due to Billing Errors Resulting from  
Order Activity PCDs)**

Liberty examined the algorithm that Verizon uses to calculate the BI-3-06 measure. The formula for the BI-3-06 metric set forth in the Guidelines is as follows:

- Numerator: The total dollars adjusted for billing errors on electronic bills in BOS BDT format (excluding PCDs)
- Denominator: The total dollars billed on electronic bills in BOS BDT format (excluding PCDs).

To calculate the denominator for the measure, Verizon sums the bill amounts for electronic bills with bill dates during the reporting month in the Bill Detail Fact table.<sup>993</sup> Verizon includes all bill amounts, but excludes any related to PCDs.<sup>994</sup> To calculate the numerator, Verizon sums all non-PCD adjustment amounts in the Bill Adjustment Fact table for paper bills where the adjustment date is within the reporting month.<sup>995</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines. However, as noted above, Verizon is over-reporting this measure because it does not select only those electronic bills in BOS BDT format.

Liberty recalculated the CLEC aggregate result, BI-3-06-2030, for February 2003 using the Bill Detail Fact table and Bill Adjustment Fact table data that Verizon provided.<sup>996</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 0.50 percent.<sup>997</sup>

During replication, Liberty initially found that Verizon had included \$1,581 in retail bills in the CLEC aggregate denominator. Verizon clarified that, at the request of the CLEC, it will allow a

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<sup>989</sup> Response to Data Request #463.

<sup>990</sup> Verizon reported a denominator of \$52,990,724, and Liberty’s result was identical.

<sup>991</sup> Verizon reported a denominator of \$763,529,052, and Liberty’s result was \$763,529,067. Liberty did not identify the reason for the small discrepancy.

<sup>992</sup> Verizon reported a denominator of \$673 and Liberty’s result was identical.

<sup>993</sup> Verizon counts the bill amount in the Bill Detail Fact table that have an e-bill indicator of Y.

<sup>994</sup> Verizon uses the record type field in the Bill Detail Fact table to select only those non-PCD records.

<sup>995</sup> Verizon uses the record type field in the Bill Adjustment Fact table to select only those non-PCD records.

<sup>996</sup> Response to Data Request #463.

<sup>997</sup> Verizon reported a denominator of \$39,684,400, and Liberty’s result was identical.

CLEC retail component account on the CLEC’s wholesale master account. In such cases, the CLEC retail component would be included in the total amount of the CLEC’s wholesale electronic bill for the purposes of calculating BI-3-06.<sup>998</sup> This accommodation to the CLEC has a negligible effect on reported results.

Verizon reported no results for its affiliates for this measure, and Liberty confirmed that there were no relevant e-bill data for these affiliates.

Verizon does not calculate the retail parity result for BI-3-06 using the same method as it does for CLEC results. Instead, it uses the same algorithm that it does for BI-3-03 (paper bills). Verizon indicated that it offered no retail bill of record choice other than paper.<sup>999</sup> Verizon’s use of the BI-3-03 retail parity result as a proxy for BI-3-06 is reasonable, but Verizon should seek a clarification to the Guidelines.

## **E. BI-4, DUF Accuracy**

### **1. Background**

The two sub-metrics within BI-4 report the accuracy of the usage records transmitted from Verizon to the CLEC on the DUF, and the percentage of corrected usage records that Verizon transmitted to the CLEC on or before the due date. For metric BI-4-01, the Guidelines require that Verizon exclude any usage record with incomplete information content or improper formatting that the CLEC does not report to Verizon within 30 days after receiving it. For metric BI-4-02, the Guidelines require that Verizon exclude any corrected usage record that corrects an inaccurate usage record that the CLEC reports to Verizon more than 30 days after the CLEC receives the inaccurate record.

Verizon reports these results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. For BI-4-01 the standard is 95 percent accuracy. For BI-4-02 there is no standard. Only BI-4-01 results are included in Verizon’s IP; however, Verizon made no IP payments related to BI-4 for the period November 2001 through January 2003.<sup>1000</sup>

### **2. Analysis and Evaluation**

As with the BI-1 metrics, Verizon uses its BAUI DUF sub-system to process and distribute CLEC resale and UNE-P DUF files and to calculate certain statistics on those files for BI-4-01. To calculate the metrics, Verizon selects the DUF records from the NMP warehouse that have a transmission date within a given month, and places those records into the Bill MBF DUF Detail Fact data table used by Verizon’s metric algorithm.

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<sup>998</sup> Responses to Data Requests #641 and #657.

<sup>999</sup> Response to Data Request #640.

<sup>1000</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

Verizon uses the same approach as it uses for BI-1 to select DUF information for the BI-4-01 sub-metric, however this metric is on a one-month lag (*i.e.*, February reported results reflect DUF files sent in January).<sup>1001</sup> This one-month lag is necessary so that Verizon can capture CLEC referrals on DUF files that it opened within 30 days of the date it sent the file. Stated differently, the denominator for BI-4-01 for a given month should match the denominator for BI-1 for the prior month.

Verizon collects information on referrals on DUF files in its BPS system, and sends files monthly to NMP for storage in the NMP warehouse.<sup>1002</sup> The BPS Referral system is a Lotus notes database that Verizon representatives use to record information on DUF and mechanized bill feed referrals. To calculate the BI-4-01 sub-metric, Verizon selects referral records from the NMP warehouse and places those records into the Bill MBF DUF Referral Fact data table used by the metrics algorithm. Verizon extracts only referral tickets closed during the reporting month from BPS.<sup>1003</sup> For example, for results reported in February 2003, Verizon would select referral tickets closed in February that related to DUF files sent in January.

Verizon’s approach for extracting data on referrals to calculate the numerator is incorrect. Since referral tickets can remain open for many days, Verizon may not pick up all tickets that are relevant to the DUF files sent in a given month. For example, if a CLEC reported a problem with a January 20<sup>th</sup> DUF file on February 15<sup>th</sup>, but Verizon did not close the referral ticket until March 1<sup>st</sup>, Verizon’s extraction process would not pick up that DUF referral for February. Therefore, Verizon’s results for February (on January DUF files) would be incorrect. The referrals that Verizon uses to calculate the measure should be all referrals on the files counted in the denominator. Liberty examined the Bill MBF DUF Referral Fact data table for March and found no referrals closed in March that related to the files sent during January. Therefore, there was no effect of the error in Verizon’s method on the February reported results.

The key data fields in the Bill MBF DUF Detail Fact table are the CLEC ID, file transmission date, and the day-counter fields that indicate how many DUF records Verizon sent within a given number of business days. The key data fields in the Bill MBF DUF Referral Fact table are the transmission date of the DUF file under investigation, the dates that Verizon opened and closed the DUF referral ticket, and the number of usage records affected by the error. Verizon also assigns an impact code to each referral, to indicate the resolution of the referral (*e.g.*, CLEC-initiated, no DUF impact, trouble not found in CRIS).

Verizon uses the impact codes to filter the referrals that it reflects in the BI-4-01 measure. Verizon includes only referrals that are CLEC-initiated in the measure.<sup>1004</sup> Verizon does not consider data transmission errors to be relevant to the measure. According to Verizon, such data transmission errors are not an indication of records that have incomplete information content or improper formatting.<sup>1005</sup>

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<sup>1001</sup> Response to Data Request #631.

<sup>1002</sup> Response to Data Request #151.

<sup>1003</sup> Responses to Data Requests #452 and #632.

<sup>1004</sup> Response to Data Request #634.

<sup>1005</sup> Response to Data Request #156.



Liberty examined how Verizon applied the exclusions for BI-4-01 set forth in the Guidelines. As noted previously, Liberty found that Verizon correctly applied the exclusion for its affiliate data. The Guidelines also indicate that any usage records with incomplete content or improper formatting that is not reported by the CLEC within 30 days after it receives them should be excluded from BI-4-01. In its calculation algorithm for the numerator, Verizon compares the open date of the referral ticket to the file transmission date, and counts only those that it opened in less than 30 calendar days after it sent the file to the CLEC. Verizon should make a minor adjustment to this algorithm, instead checking for referrals opened in less than or equal to 30 days (to appropriately reflect the “within 30 days” language in the Guidelines).

Verizon calculates the BI-4-02 measure manually. In order to return a corrected usage file to a CLEC, Verizon must receive the original file from the CLEC. Verizon indicated that since the inception of the metric it has not received a returned file from a CLEC, and thus reports NA for this measure.<sup>1006</sup> Liberty therefore conducted no further examination of this sub-metric.

Liberty examined the algorithm that Verizon uses to calculate the BI-4-01 measure. The formula for the BI-4-01 metric set forth in the Guidelines is as follows:

- Numerator: The number of usage records delivered in the reporting period that had complete information content and proper formatting
- Denominator: The total number of usage records delivered in the reporting period.

To calculate the denominator for the measure, Verizon sums the number of total usage records in each DUF file sent during the prior month.<sup>1007</sup> Verizon reports this measure on a one-month lag, to allow CLECs up to 30 days to report incorrect format or data in a given DUF file (in other words, the results that Verizon reports in February relate to DUF files it sent to the CLECs in January).

To calculate the numerator, Verizon subtracts from the number of usage records in the denominator any usage records that had incorrect format or information content reported within 30 days of the date it sent the file.<sup>1008</sup> To do so, Verizon identifies any closed referral in the Bill MBF DUF Referral file and checks to see if it opened the referral within 30 days of the date that it initially sent the file. Verizon counts only those usage records that relate to referrals that were CLEC-initiated.

As noted above, Verizon’s approach for calculating the numerator of this measure does not conform to the Guidelines because of the method it uses to extract records for the numerator. Liberty recognizes that correcting the numerator may be difficult. Verizon representatives do not enter the impact code (which Verizon uses to select only certain referrals) until the referral ticket is closed. This means that, to accurately capture all relevant referrals on the DUF files, Verizon may have to move to a two-month lag in reporting (since, for example, Verizon may not close referrals on January DUF files until March). While correcting the numerator of this metric may

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<sup>1006</sup> Response to Data Request #637.

<sup>1007</sup> Verizon counts all records in the Bill MBF DUF Detail Fact file that have a day-count indicator of 0, which is the total number of records in a given DUF file.

<sup>1008</sup> Verizon counts the number of usage records affected by the error in the Bill MBF DUF Referral Fact file.

require changes in Verizon’s processes and will likely not have a significant effect on reported results, the current method is, nevertheless, inconsistent with the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-4-01-2030, for February 2003 using the Bill MBF DUF Detail Fact table and Bill MBF DUF Referral Fact table that Verizon provided.<sup>1009</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>1010</sup>

Verizon reported no results for its affiliates for this measure, and Liberty confirmed that there were no relevant data for these affiliates.

## **F. BI-5, Accuracy of Mechanized Bill Feed**

### **1. Background**

The BI-5 measure reports the accuracy of the mechanized bill feed (MBF) for CRIS bills. There is only one individual reported result in this measure group. The Guidelines specify that Verizon should exclude any file with incomplete information content or improper formatting not reported to Verizon by the CLEC within 30 days after the CLEC receives the file.

Verizon reports this result on a statewide basis, by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates. The standard for BI-5-01 is 95 percent accuracy. The IP includes BI-5; Verizon did not make any payments related to the measure for the period November 2001 through January 2003.

### **2. Analysis and Evaluation**

Verizon captures information about its mechanized bill feed files in its Bill Reformat System (BRS), and sends files weekly to NMP for storage in the NMP warehouse.<sup>1011</sup> To calculate the metrics, Verizon selects the MBF records from the NMP warehouse that have a transmission date within a given month, and places those records into the Bill MBF DUF Detail Fact data table used by the metric algorithm.

Verizon uses the same approach to select MBF information for BI-5-01 that it does for the BI-4-01 sub-metric, since both are on a one-month lag (*i.e.*, February reported results reflect MBF files sent in January).<sup>1012</sup> This one-month lag is necessary so that Verizon can capture referrals on MBF files that it opened within 30 days of the date it sent the file.

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<sup>1009</sup> Responses to Data Requests #463 and #633.

<sup>1010</sup> Verizon reported a denominator of 157,550,629, and Liberty’s result was identical. Liberty found that there was only one January DUF file (containing 5 records) with a referral closed during February. The 0 percent is the result of dividing 5 by 157,550,629.

<sup>1011</sup> Response to Data Request #151.

<sup>1012</sup> Response to Data Request #631.

Verizon collects information on referrals on MBF files in its BPS system, and sends files monthly to NMP for storage in the NMP warehouse.<sup>1013</sup> To calculate the BI-5-01 sub-metric, Verizon selects referral records from the NMP warehouse and places those records into the Bill MBF DUF Referral Fact data table used by Verizon’s metrics algorithm. Verizon extracts only referral tickets closed during the reporting month from BPS.<sup>1014</sup> For example, for results reported in February 2003, Verizon would extract referral tickets closed in February that related to MBF files sent in January.

As noted in the discussion above for BI-4, Verizon’s approach for extracting data on referrals is incorrect. The referrals that Verizon uses to calculate the measure should be all referrals on the files counted in the denominator.

The key data fields in the Bill MBF DUF Detail Fact table are the CLEC ID, file transmission date, and the file counter field, which indicates the number of MBF files sent in a given transmission. The key data fields in the Bill MBF DUF Referral Fact table are the CLEC ID, the transmission date of the MBF file under investigation, the dates that Verizon opened and closed the MBF referral ticket, and the number of files affected by the error. Verizon counts only those referrals that were CLEC-initiated.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Liberty found that Verizon correctly applied the exclusion for its affiliate data. The Guidelines also indicate that Verizon should exclude any MBF records with incomplete content or improper formatting that the CLEC does not report within 30 days after it receives them. In its calculation algorithm, Verizon compares the open date of the referral ticket to the file transmission date, and counts only those that it opened in less than 30 calendar days after it sent the file to the CLEC. Verizon should make a minor adjustment to this algorithm, instead checking for referrals opened in less than or equal to 30 days (to appropriately reflect the “within 30 days” language in the Guidelines).

### **BI-5-01 – % Accuracy of Mechanized Bill Feed**

Liberty examined the algorithm that Verizon uses to calculate the BI-5-01 measure. The formula for the BI-5-01 metric set forth in the Guidelines is as follows:

- Numerator: The total number of files delivered in the reporting period that had completed information content and proper formatting
- Denominator: The total number of files delivered in the reporting period.

To calculate the denominator for the measure, Verizon sums the number of mechanized bill feed files it sent during the prior month.<sup>1015</sup> Verizon reports this measure on a one-month lag, to allow CLECs up to 30 days to report incorrect format or data in a given MBF record (in other words, the results that Verizon reports in February relate to MBF files it sent to the CLECs in January).

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<sup>1013</sup> Response to Data Request #151.

<sup>1014</sup> Responses to Data Requests #452 and #632.

<sup>1015</sup> Verizon counts the file counter field in the Bill MBF DUF Detail Fact file for files sent within the month.

To calculate the numerator, Verizon subtracts from the number of files in the denominator any files that had incorrect format or information content reported within 30 days of the date it sent the file.<sup>1016</sup> To do so, Verizon identifies any closed referral in the Bill MBF DUF Referral file and checks to see if it opened the referral within 30 days of the date it initially sent the file. Verizon counts only those files that relate to referrals that were CLEC-initiated.

As noted above and under BI-4, Liberty found that Verizon’s approach for calculating the numerator of this measure does not conform to the Guidelines. While correcting the numerator of this metric may require changes in Verizon’s processes and will likely not have a significant effect on reported results, the current method is not consistent with the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-5-01-2030, for February 2003 using the Bill MBF DUF Detail Fact and Bill MBF DUF Referral Fact tables that Verizon provided.<sup>1017</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>1018</sup> Liberty also recalculated the Verizon affiliate result, and replicated Verizon’s reported denominator, as well as the overall result, 100 percent.<sup>1019</sup>

## **G. BI-6, Completeness of Usage Charges**

### **1. Background**

The metrics within BI-6 report the completeness of Verizon usage charges and Verizon usage billing errors itemized by date on the carrier bill. The two sub-metrics within BI-6 reflect the percentage completeness of usage charges both including and excluding any adjustments resulting from ordering activity post completion discrepancies. Under the Guidelines, Verizon derives this measure on the basis of the number of usage items as a proxy for usage charges.

Verizon reports these results on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates; Verizon also reports a retail parity result for BI-6-02. For metric BI-6-01 there is no standard. For the BI-6-02 metric the standard is parity with Verizon retail. Verizon’s IP includes the BI-6-02 metric. Verizon did not make any IP payments related to BI-6 for the period from November 2001 through January 2003.

### **2. Analysis and Evaluation**

Verizon collects bill detail information for New Jersey CLECs in its CABS South system and in its Flexible Billing System (FBS), a component of CRIS, and sends files daily to NMP for storage in the NMP warehouse.<sup>1020</sup> Verizon selects the relevant billing records from the NMP warehouse that have a bill date within a given month, and places those records into the Bill

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<sup>1016</sup> Verizon counts the number of file records affected by the error in the Bill MBF DUF Referral Fact file.

<sup>1017</sup> Responses to Data Requests #463 and #633.

<sup>1018</sup> Verizon reported a denominator of 304 and Liberty’s result was identical.

<sup>1019</sup> Verizon reported a denominator of 1 and Liberty’s result was identical.

<sup>1020</sup> Response to Data Request #151.

Detail Fact table used by Verizon’s metrics algorithm.<sup>1021</sup> Because of the large number of retail billing records, Verizon has a separate process for aggregating its retail records prior to moving the data to the Bill Detail Fact file. Verizon aggregates records by state, record type, system ID and bill date.<sup>1022</sup>

The key data fields in the Bill Detail Fact table for the BI-6 metrics are the CLEC ID, account key (which indicates the individual CLEC accounts), bill date, bill usage items, and bill usage items accrued in the last two billing period. Verizon calculates the number of bill usage items (the defined proxy for usage charges in the Guidelines) accrued during the last two periods within the legacy source systems.

Verizon calculates the BI-6 metrics based on CLEC bills of record.<sup>1023</sup> The Guidelines do not specifically indicate that Verizon should use the bill of record. This approach is reasonable, but Verizon should seek a clarification to the Guidelines.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Liberty found that Verizon correctly applied the exclusion for its affiliate data. For the BI-6-02 metric, the Guidelines specify that Verizon exclude order activity PCD delayed charges. Verizon excludes such PCD records from this sub-metric in its algorithm by filtering out the PCD billing records created by the service representatives.

#### **BI-6-01 – % Completeness of Usage Charges – Including Order Activity Post Completion Discrepancy Delayed Charges**

Liberty examined the algorithm that Verizon uses to calculate the BI-6-01 measure. The formula for the BI-6-01 metric set forth in the Guidelines is as follows:

- Numerator: The usage charges shown on the bill that were recorded during the last two billing cycles (including PCDs)
- Denominator: The total usage charges shown on the bill.

To calculate the denominator for the measure, Verizon sums the absolute value of the number of usage items, including PCDs, on those bills having bill dates during the reporting month. To calculate the numerator, Verizon sums the absolute value of the number of usage items, including PCDs, that accrued in the last two billing periods.<sup>1024</sup>

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

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<sup>1021</sup> Response to Data Request #642.

<sup>1022</sup> Response to Data Request #448.

<sup>1023</sup> Response to Data Request #655.

<sup>1024</sup> In response to Data Request #645, Verizon clarified that usage items can be either debit or credit items; in order to reflect all of the activity, Verizon uses the absolute value.

Liberty recalculated the CLEC aggregate result, BI-6-01-2030, for February 2003 using the Bill Detail Fact table data that Verizon provided.<sup>1025</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>1026</sup>

Verizon reported no results for its affiliates for this measure, and Liberty confirmed that there were no relevant data for these affiliates.

### **BI-6-02 – % Completeness of Usage Charges – Excluding Order Activity Post Completion Discrepancy Delayed Charges**

Liberty examined the algorithm that Verizon uses to calculate the BI-6-02 measure. The formula for the BI-6-02 metric set forth in the Guidelines is as follows:

- Numerator: The usage charges shown on the bill that were recorded during the last two billing cycles (excluding PCDs)
- Denominator: The total usage charges shown on the bill.

To calculate the denominator for the measure, Verizon sums the absolute value of the number of usage items, excluding PCDs, on those bills having bill dates during the reporting month. To calculate the numerator, Verizon sums the absolute value of the number of usage items, excluding PCDs that accrued in the last two billing periods. Verizon calculates a retail parity result using the same method to determine a numerator and denominator.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-6-02-2030, for February 2003 using the Bill Detail Fact table data that Verizon provided.<sup>1027</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>1028</sup> Liberty also recalculated the retail parity result for this metric. Liberty replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>1029</sup>

Verizon reported no results for its affiliates for this measure, and Liberty confirmed that there were no relevant data for these affiliates.

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<sup>1025</sup> Response to Data Request #463.

<sup>1026</sup> Verizon reported a denominator of 436,989,053, and Liberty’s result was identical.

<sup>1027</sup> Response to Data Request #463.

<sup>1028</sup> Verizon reported a denominator of 436,978,688, and Liberty’s result was identical.

<sup>1029</sup> Verizon reported a denominator of 1,056,264,594, and Liberty’s result was identical.

## **H. BI-7, Completeness of Fractional Recurring Charges**

### **1. Background**

The metrics within BI-7 report the completeness of Verizon’s fractional charges shown on the carrier bill. A fractional recurring charge is a recurring charge for a service to which a CLEC subscribed for only a portion of a billing cycle. The two sub-metrics within BI-7 reflect the percentage completeness of fractional charges both including and excluding any adjustments resulting from ordering activity post completion discrepancies.

Verizon reports this result on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates; Verizon also reports a retail parity result for BI-7-02. For metric BI-7-01 there is no standard. For the BI-7-02 metric, the standard is parity with Verizon retail. The BI-7-02 metric is included in the IP; Verizon made payments of \$255,000 related to this measure during the period November 2001 through January 2003.<sup>1030</sup>

### **2. Analysis and Evaluation**

Verizon collects bill detail information for New Jersey CLECs in its CABS South system and in its Flexible Billing System (FBS), a component of CRIS, and sends files daily to NMP for storage in the NMP warehouse.<sup>1031</sup> Verizon indicated that it excludes from the source data certain additional charges and credit (AC&C) type codes that have no revenue impact (such as those used to trigger bill messages).<sup>1032</sup> Verizon selects the relevant billing records from the NMP warehouse that have a bill date within a given month, and places those records into the Bill Detail Fact table used by Verizon’s metrics algorithm.<sup>1033</sup> Because of the large number of retail billing records, Verizon has a separate process for aggregating its retail records prior to moving the data to the Bill Detail Fact file. Verizon aggregates records by state, record type, system ID and bill date.<sup>1034</sup>

The key data fields in the Bill Detail Fact table for the BI-7 metrics are the CLEC ID, account key (which indicates the individual CLEC accounts), bill date, fractional recurring debits and credits, and fractional recurring debits and credits accrued in the last two billing period.<sup>1035</sup> Verizon calculates the amounts accrued during the last two periods within the legacy source systems.

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<sup>1030</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>1031</sup> Response to Data Request #151.

<sup>1032</sup> Response to Data Request #452.

<sup>1033</sup> Response to Data Request #642.

<sup>1034</sup> Response to Data Request #448.

<sup>1035</sup> In its responses to Data Requests #650 and #656, Verizon stated that it had completed a related change control for the December 2002 data month (CCNJ-2002-07496-Bil). Verizon had been incorrectly treating debits and credits associated with rate restructuring activities as delayed charges in BI-7 and BI-8 when they were not.

Verizon calculates the BI-7 metric based on CLEC bills of record.<sup>1036</sup> The Guidelines do not specifically indicate that Verizon should use the bill of record. This approach is reasonable, but Verizon should seek a clarification to the Guidelines.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Liberty found that Verizon correctly applied the exclusion for its affiliate data. For the BI-7-02 metric, the Guidelines specify that Verizon exclude order activity PCD delayed charges. Verizon excludes such PCD records from this sub-metric in its algorithm by filtering out the PCD billing records created by the service representatives.

**BI-7-01 – % Completeness of Fractional Recurring Charges – Including Order Activity Post Completion Discrepancy Delayed Charges**

Liberty examined the algorithm that Verizon uses to calculate the BI-7-01 measure. The formula for the BI-7-01 metric set forth in the Guidelines is as follows:

- Numerator: The fractional recurring charges shown on the bill that were accrued in the last two billing cycles (including PCDs)
- Denominator: The total fractional recurring charges shown on the bill.

To calculate the denominator for the measure, Verizon sums the absolute value of all fractional recurring debits and credits, including PCDs, on those bills having bill dates during the reporting month. To calculate the numerator, Verizon sums the absolute value of fractional recurring debits and credits, including PCDs, that accrued in the last two billing periods.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

**BI-7-02 – % Completeness of Fractional Recurring Charges – Excluding Order Activity Post Completion Discrepancy Delayed Charges**

Liberty examined the algorithm that Verizon uses to calculate the BI-7-02 measure. The formula for the BI-7-02 metric set forth in the Guidelines is as follows:

- Numerator: The fractional recurring charges shown on the bill that were accrued in the last two billing cycles (excluding PCDs)
- Denominator: The total fractional recurring charges shown on the bill.

To calculate the denominator for the measure, Verizon sums the absolute value of all fractional recurring debits and credits, excluding PCDs, on those bills having bill dates during the reporting month. To calculate the numerator, Verizon sums the absolute value of fractional recurring debits and credits, excluding PCDs, that accrued in the last two billing periods. Verizon

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<sup>1036</sup> Response to Data Request #655.



calculates a retail parity result using the same method to determine a numerator and denominator.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-7-02-2030, for February 2003 using the Bill Detail Fact table data that Verizon provided.<sup>1037</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 88.57 percent.<sup>1038</sup> Liberty also recalculated the retail parity result for this metric, and replicated Verizon’s reported denominator, as well as the overall result of 77.14 percent.<sup>1039</sup> Additionally, Liberty recalculated the aggregate Verizon aggregate result, and replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>1040</sup>

## **I. BI-8, Non-Recurring Charge Completeness**

### **1. Background**

The metrics within BI-8 report the completeness of Verizon non-recurring charges shown on the carrier bill. The two sub-metrics within BI-8 reflect the percentage completeness of non-recurring charges both including and excluding any adjustments resulting from ordering activity post completion discrepancies.

Verizon reports this result on a statewide basis by individual and aggregate CLECs, and by individual and aggregate Verizon affiliates; Verizon also reports a retail parity result for BI-8-02. For metric BI-8-01 there is no standard. For the BI-8-02 metric the standard is parity with Verizon retail. The IP includes the BI-8-02 metric; Verizon made payments of \$90,000 related to this measure during the period November 2001 through January 2003.<sup>1041</sup>

### **2. Analysis and Evaluation**

Verizon collects bill detail information for New Jersey CLECs in its CABS South system and in its Flexible Billing System (FBS), a component of CRIS, and sends files daily to NMP for storage in the NMP warehouse.<sup>1042</sup> Verizon indicated that it excludes from the source data certain additional charges and credit (AC&C) type codes that have no revenue impact (such as those used to trigger bill messages).<sup>1043</sup> Verizon selects the relevant billing records from the NMP warehouse that have a bill date within a given month, and places those records into the Bill

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<sup>1037</sup> Response to Data Request #463.

<sup>1038</sup> Verizon reported a denominator of \$1,122,439.54, and Liberty’s result was identical.

<sup>1039</sup> Verizon reported a denominator of \$12,174,368.80, and Liberty’s result was identical.

<sup>1040</sup> Verizon reported a denominator of \$2.78, and Liberty’s result was identical.

<sup>1041</sup> Incentive payment reports provided to Liberty by the Board’s Staff.

<sup>1042</sup> Response to Data Request #151.

<sup>1043</sup> Response to Data Request #452.

Detail Fact table used by Verizon’s metrics algorithm.<sup>1044</sup> Because of the large number of retail billing records, Verizon has a separate process for aggregating its retail records prior to moving the data to the Bill Detail Fact file. Verizon aggregates records by state, record type, system ID and bill date.<sup>1045</sup>

The key data fields in the Bill Detail Fact table for the BI-8 metrics are the CLEC ID, account key (which indicates the individual CLEC accounts), bill date, non-recurring debits and credits, and non-recurring debits and credits accrued in the last two billing periods. Verizon calculates the amounts accrued during the last two periods within the legacy source systems.

Verizon calculates the BI-8 metric based on CLEC bills of record.<sup>1046</sup> The Guidelines do not specifically indicate that Verizon should use the bill of record. This approach is reasonable, but Verizon should seek a clarification to the Guidelines.

Liberty examined how Verizon applied the exclusions set forth in the Guidelines. Liberty found that Verizon correctly applied the exclusion for its affiliate data. For the BI-8-02 metric, the Guidelines specify that Verizon exclude order activity PCD delayed charges. Verizon excludes such PCD records from this sub-metric in its algorithm by filtering out the PCD billing records created by the service representatives.

#### **BI-8-01 – % Completeness of Non-Recurring Charges – Including Order Activity Post Completion Discrepancy Delayed Charges**

Liberty examined the algorithm that Verizon uses to calculate the BI-8-01 measure. The formula for the BI-8-01 metric set forth in the Guidelines is as follows:

- Numerator: The non-recurring charges shown on the bill that were accrued in the last two billing cycles (including PCDs)
- Denominator: The total non- recurring charges shown on the bill.

To calculate the denominator for the measure, Verizon sums the absolute value of all non-recurring debits and credits, including PCDs, on those bills having bill dates during the reporting month. To calculate the numerator, Verizon sums the absolute value of non-recurring debits and credits, including PCDs, that accrued in the last two billing periods.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

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<sup>1044</sup> Response to Data Request #642.

<sup>1045</sup> Response to Data Request #448.

<sup>1046</sup> Response to Data Request #655.

### **BI-8-02 – % Completeness of Non-Recurring Charges – Excluding Order Activity Post Completion Discrepancy Delayed Charges**

Liberty examined the algorithm that Verizon uses to calculate the BI-8-02 measure. The formula for the BI-8-02 metric set forth in the Guidelines is as follows:

- Numerator: The non-recurring charges shown on the bill that were accrued in the last two billing cycles (excluding PCDs)
- Denominator: The total non-recurring charges shown on the bill.

To calculate the denominator for the measure, Verizon sums the absolute value of all non-recurring debits and credits, excluding PCDs, on those bills having bill dates during the reporting month. To calculate the numerator, Verizon sums the absolute value of non-recurring debits and credits, excluding PCDs, that accrued in the last two billing periods. Verizon calculates a retail parity result using the same method to determine a numerator and denominator.

Liberty concluded that Verizon’s method for calculating this measure conforms to the Guidelines.

Liberty recalculated the CLEC aggregate result, BI-8-02-2030, for February 2003 using the Bill Detail Fact table data that Verizon provided.<sup>1047</sup> Liberty replicated Verizon’s reported denominator, as well as the overall result of 99.98 percent.<sup>1048</sup> Liberty also recalculated the retail parity result for this metric, and replicated Verizon’s reported denominator, as well as the overall result of 98.14 percent.<sup>1049</sup> Additionally, Liberty recalculated the aggregate Verizon affiliate result, and replicated Verizon’s reported denominator, as well as the overall result of 100 percent.<sup>1050</sup>

## **J. Findings and Recommendations**

**Verizon has adopted certain conventions for calculating the BI measures that are reasonable, but not reflected in the Guidelines.**

Liberty found a number of instances in which Verizon’s approach to calculating the measures was reasonable, but not reflected in the Guidelines. Liberty recommends that Verizon seek clarifications to the Guidelines for the following methods:

- The exclusion of test CLEC results from the metric calculations
- The exclusion of the VADI bills from retail parity results
- The exclusion of bills associated with Verizon official services
- The use of the BI-3-03 result as the retail parity result for the BI-3-06 metric
- The use of CLEC bills of record as the basis for the calculation of the BI-6, BI-7 and BI-8 measures

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<sup>1047</sup> Response to Data Request #463.

<sup>1048</sup> Verizon reported a denominator of \$1,281,613.73, and Liberty’s result was identical.

<sup>1049</sup> Verizon reported a denominator of \$5,630,123.73, and Liberty’s result was identical.

<sup>1050</sup> Verizon reported a denominator of \$167.17, and Liberty’s result was identical.

- The definition of the reporting month for the BI-3 measures.

**Verizon does not have formal documentation for the processes and methods it uses to determine BI measure results.**

It appears that much of the documentation Liberty received from Verizon was prepared for Liberty’s audit. Liberty recommends that Verizon clearly document its process for obtaining source data and calculating the billing metrics. Additionally, Liberty also recommends that Verizon publish clear and accurate Metric Business Rules on its web site that could be used by CLECs to replicate Verizon’s results if they so choose.

**Verizon is underreporting its results for the BI-2-02 metric.**

Liberty found cases where Verizon excluded certain CLEC paper bills from BI-2-01 because it would include the electronic BOS BDT format bill of record for this CLEC in BI-2-02, yet Verizon’s data contained no such electronic bill for these CLECs. Liberty recommends that Verizon ensure that it has properly included all electronic BOS BDT bills of record in BI-2-02.

**Verizon is over-reporting its results for the BI-3-06 metric and is not in compliance with the Guidelines.**

For the calculation of the BI-2 metrics, Verizon includes a step in its algorithms to validate that the electronic bill is in the BOS BDT format per the Guidelines. However, for the calculation of the BI-3-06 measure, Verizon does not repeat the same logic step, and therefore includes all electronic bills in the denominator, rather than only those in BOS BDT format. Liberty recommends that Verizon revise its calculation of this metric to include only BOS BDT format electronic bills in the measure.

**Verizon does not comply with the Guidelines with respect to the records it selects for the numerator of the BI-4 and BI-5 measures.**

The Guidelines for BI-4 and BI-5 require that the metrics reflect all errors reported by the CLECs within 30 days. However, Verizon’s approach to identifying records/files that are included in these measures uses referral tickets that are less than 30 days from the date Verizon sent the file to the CLEC. This method erroneously excludes records/files that CLECs referred to Verizon on the 30<sup>th</sup> day from transmission. Liberty recommends that Verizon change its process to include referrals opened in less than or equal to 30 days from transmission.

**Verizon's approach for extracting data on referrals to calculate the BI-4 and BI-5 measure numerators is incorrect and not in conformance with the Guidelines.**

Verizon's method of not including referrals in the metric calculation until it closes them could exclude records relevant to the reporting month should they remain open until the following month. Liberty recognizes the difficulty Verizon may have in changing its current process and believes that such a change in process would have a negligible impact on the performance results. Nevertheless, Verizon is not in compliance with the Guidelines. As an alternative to changing its process, Verizon could seek to gain approval to change the Guidelines to make clear how it selects referrals for inclusion in the measures for the reporting period.

## **IX. Operator Services, Databases, and General Performance Measures**

### **A. General Background**

The Operator Services and Databases domain consists of three basic performance measures. OD-1 reports on speed of answer. OD-2 would measure access to various databases, but Verizon is not currently reporting it. OD-3 measures the accuracy of Verizon’s directory assistance updates. OD-1 and OD-3 are included in the IP. All of the OD-1 sub-metrics are to be reported in aggregate, *i.e.*, with combined Verizon and CLEC data.

The General (GE) domain consists of three basic performance measures, each with a single metric and reported result. The IP includes two of the three measures. However, for the period from November 2001 through January 2003, Verizon’s reports indicate that it made no payments related to the GE measures.<sup>1051</sup> Verizon’s reporting in this domain picks up three miscellaneous measures that do not fit in the other domains. They are: (1) directory verification reports transmitted on time, (2) the timeliness of Verizon’s response to requests for access to poles, ducts, conduit, and rights-of-way, and (3) the timeliness of Verizon’s response to bona fide requests for access to UNEs.

### **B. OD-1, Operator Services – Speed of Answer**

#### **1. Background**

There are four sub-metrics reported here, none of which have any exclusions. OD-1-01 measures average speed of answer for operator services, while OD-1-02 measures average speed of answer for directory assistance. There are no standards for these two sub-metrics.

OD-1-03 reports on the percent of calls to operator services answered within 30 seconds, and OD-1-04 reports on the percent of directory assistance calls answered within 30 seconds. The standard for both of these sub-metrics is 95 percent. These are the two sub-metrics that are included in the IP, although there have been no incentive payments for either of them during the period from November 2001 through January 2003.

The formula for OD-1-01 and OD-01-02 is:<sup>1052</sup>

*(Sum of call answer time from time call enters queue until call is answered by operator) (Number of calls answered)*

The formula for OD-1-03 and OD-01-04 is:

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<sup>1051</sup> Response to Data Request #47, and incentive payment reports provided by the Board’s Staff.

<sup>1052</sup> C2C Guidelines, April 2002.

*(Number of calls answered within 30 seconds after the call enters queue)/  
(Number of calls answered)*

## **2. Analysis and Evaluation**

The *Geography* section of the *Report Dimensions* in the Guidelines states that the data are:

*Measured and reported for each Verizon operator service center and Verizon directory assistance service center, serving CLEC New Jersey customers.*

Verizon reports each of the four OD-1 sub-metrics in aggregate, *i.e.*, including the results from all Verizon service centers that serve CLEC customers. There are no service centers that serve only Verizon New Jersey customers. All eight directory assistance service centers and the two operator service centers serve both CLEC and Verizon customers in New Jersey, and thus all ten centers are included in the metrics, but only for calls from Verizon or CLEC customers who are in New Jersey.

An operator handles every directory assistance call. However, the system handles some operator service calls, such as calling card or collect calls, without human involvement. Verizon terms these O+ calls. Verizon excludes these O+ calls from both the numerators and denominators of the OD-1-01 and OD-1-03 sub-metrics.<sup>1053</sup>

A Northern Telecom DMS200 switch (with a remote) handles all calls to the ten service centers. The Traffic Operator Position System (TOPS) in the switch creates a “call queue event message” for every call it receives. This message includes (among other data) the queue number, the length of time the call was in queue, and whether the call was abandoned. Abandoned calls are not included in either the denominator or the numerator of the OD-1 performance metrics.<sup>1054</sup> The queue number identifies whether the call was from a Verizon customer or a CLEC customer, and also the state from which the call was made. A Service Provider ID Table (SPID) within the DMS200 switch contains the information required to determine if a call came from a Verizon customer or a CLEC customer.

The call queue event messages are continuously sent to Verizon’s Force Management System (FMS). The FMS prepares a report for use in calculating the metric results. The FMS excludes abandoned calls from this report. The call queue event messages for abandoned calls are different from the messages for calls answered by an operator, enabling FMS to make this exclusion.<sup>1055</sup> The FMS Output Report shows (for each queue) the number of calls, the total call waiting time, the number of calls answered in greater than 10 seconds, and the number of calls answered in greater than 30 seconds. Verizon personnel then sum the data as required from the queues (separately summing the data for CLEC queues and for Verizon queues) and calculate the metric results (*i.e.*, determine, by subtraction, the number of calls answered in less than 30 seconds and then calculate the percent of calls answered in less than 30 seconds, and also

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<sup>1053</sup> Response to Data Request #57.

<sup>1054</sup> Response to Data Request #53.

<sup>1055</sup> Response to Data Request #301.

perform the division required to calculate the average waiting time). Verizon issued Change Control Notice CCNJ2003-07835-OS recently to announce the mechanization of OD-1 into NMP.

Liberty requested the file used by Verizon to calculate the OD-1 performance results for December 2002.<sup>1056</sup> Liberty reviewed the file to ensure that it was internally consistent and that it yielded the results published in the December 2002 metric performance report.

Liberty also evaluated Verizon’s OD-1 methods and procedures documentation to ensure it was complete and accurate, and concluded that it was adequate other than the minor finding noted below.<sup>1057</sup>

## **C. OD-2, LIDB, Routing and OS/DA Platform**

### **1. Background**

While there are standards for this metric, Verizon does not measure or report performance under it. The Guidelines do not include a definition, a list of exclusions, report dimensions, or formulas for this metric.

### **2. Analysis and Evaluation**

Because Verizon does not measure or report performance under this metric, Liberty did not analyze it.

## **D. OD-3, Directory Assistance Database Update Accuracy**

### **1. Background**

OD-3 measures the percent of directory assistance updates completed during the reporting period that Verizon makes accurately. Verizon compares the update order sent by the CLEC to the Directory Assistance database to check for correctness. Verizon makes the same check for accuracy for updates to Verizon customers’ data made to the Directory Assistance database. Each month, Verizon checks a sample of updates, and it is the percent of errors in this sample that it reports.

OD-3-01 measures the accuracy percent including all updates, while OD-3-02 measures the percent accuracy only for service orders that did not have errors resulting from service order errors (order activity post completion discrepancies). OD-3-01 has no standard and it is not included in the IP. The standard for OD-3-02 is parity with Verizon retail, and it is included in

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<sup>1056</sup> Response to Data Request #56.

<sup>1057</sup> Responses to Data Requests #5 and 55.



the IP. There were incentive plan payments of \$417 for OD-3-02 during the period December 2001 through February 2002, and none thereafter through January 2003.<sup>1058</sup>

The formula for both OD-3-01 and OD-3-02 is:

$$(Number\ of\ updates\ completed\ without\ error)/(Total\ number\ of\ updates\ completed)$$

There are no exclusions for OD-3-01. As noted above, OD-3-02 excludes database errors that result from service order errors (order activity post completion discrepancies). Verizon reports these metrics by Verizon retail, CLEC aggregate (excluding Verizon affiliates), CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific.

## 2. Analysis and Evaluation

When Verizon receives Directory Assistance service orders, the listing data is sent to the LiveSource ES-40 Alpha system which is also referred to as the Database Administration Center/Integrated Support System (DACISS).<sup>1059</sup> This system reformats the listing data into the format required by Verizon’s Volt Directory Assistance database. After Verizon updates the Volt Directory Assistance database, it produces a file that contains all of the listings made successfully.

Each day, Verizon runs a program called CLEC Listing Validation Quality Process (CLVQP) to generate a random sample of update listings from those that were input that day into the LiveSource ES-40 Alpha system. For each month, Verizon’s total sample for the OD-3 metrics consists of 200 Verizon updates, 100 CLEC updates (which includes Verizon affiliates whenever the random sample happens to include Verizon affiliate service orders<sup>1060</sup>), and 100 reseller updates. Verizon only samples insert, or “add,” Directory Assistance database transactions.<sup>1061</sup>

The format of the input listings is identical to the format of the listings made successfully. Thus, Verizon is able to compare the two files, byte-by-byte. Two files are produced from this comparison, one containing listings that matched exactly (“matching”), and the other containing listings that had discrepancies (“non-matching”). Using these files, Verizon calculates the OD-3-01 metric results.

An additional step is required to calculate OD-3-02 results. A Verizon employee in the Verizon Database Administration Center reviews each of the small number of listings in the “non-matching” file to see if the mismatch was due to a service order error.

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<sup>1058</sup> IP Reports provided by the Board’s Staff to Liberty.

<sup>1059</sup> Response to Data Request #104.

<sup>1060</sup> Response to Data Request #103.

<sup>1061</sup> Response to Data Request #98.

Although the wording of the Guidelines seems to equate service order errors with order activity post completion discrepancies, Verizon views them very differently. Verizon has listed three conditions that represent valid Post Completion Discrepancies:<sup>1062</sup>

- Update does not apply to database due to presence of pre-existing listing
- Update is intervened by database tables for optimization
- Update contains erroneous data which requires correction prior to updating.

Verizon considers only the third condition above to represent a service order error. Liberty confirmed that there are no other types of valid Post Completion Discrepancies.<sup>1063</sup>

During the review, the Verizon employee flags each non-matching listing for which the cause was a service order error. Verizon then calculates the OD-3-02 metric results using the output of this manual assessment. The exclusion for service order errors has never been required.<sup>1064</sup>

The December 2002 OD-3 performance results were the first ones produced using NMP.

Liberty reviewed the matching and non-matching files of OD-3 data for December 2002. The matching file contained 398 records, and the non-matching file contained 2. The two non-matching records had a company code of “9206” which means they were Verizon updates. From this alone, the OD-3-01 December performance result of  $198/200 = .99$  for Verizon and  $200/200 = 1.00$  for CLEC aggregate can be calculated, and those numbers are as reported in the December 2002 performance report. The absence of CLEC non-matches also confirms the 1.00 reported December 2002 OD-3-02 CLEC result. Liberty also confirmed the December 2002 Verizon OD-3-02 result, which was the same as the OD-3-01 result because the two Verizon non-matches were not due to service order errors.

Liberty evaluated the documentation related to OD-3<sup>1065</sup> and concluded that it was adequate.

## **E. GE-1, Directory Listing Verification Reports**

### **1. Background**

The single metric reported is GE-1-01, which is the percentage of directory listing verification reports furnished on time. It is the number of verification reports issued on or before 30 business days prior to the closeout date for the scheduled directory divided by the total number of directory listing verification reports due in the reporting period. The verification process is to enable a CLEC to confirm that information sent to the directory publisher is accurate. There are two data exclusions included in this metric. The first exclusion is for verification reports in which the CLEC requests that Verizon transmit reports less than 30 business days before directory closeout. The second data exclusion is the removal of Verizon affiliate data from the

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<sup>1062</sup> Response to Data Request #5.

<sup>1063</sup> Response to Data Request #99.

<sup>1064</sup> Data Request #704.

<sup>1065</sup> Response to Data Request #5.

CLEC aggregate results. The performance standard is 95 percent of the reports on time. Verizon reports the measure exclusively on a statewide basis for CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific. This metric is included in Verizon’s IP.

## 2. Analysis and Evaluation

The formula for GE-1 metric is:

*GE-1-01- (number of Directory Listing verification reports due in the reporting period that are transmitted on or before the due date) /Total number of directory listing verifications report due in the reporting period)*

Liberty conducted interviews with Verizon subject matter experts and issued a number of data requests concerning this metric. Liberty analyzed the GE 1-01 verification report process to determine if Verizon generates the appropriate information for the metric. The process begins when a telecommunications consumer contacts a CLEC requesting service for a customer. The CLEC submits the LSR/DSR to Verizon’s National Marketing Center (NMC) for processing. The NMC issues a service order that goes to, and maintained in, the Son of Beacon Emergency Replacement (“SOBER”).<sup>1066</sup> A Verizon analyst pulls the relevant information from SOBER and manually enters the information for report verification in the CLEC table, which is an Excel spreadsheet. The information accumulates during the year, and exactly 31 business days prior to the closeout date for the directory, Verizon sends the verification reports via Airborne Express to the appropriate CLEC for review. Airborne Express provides a signed receipt to confirm the delivery within the required period. If Verizon is unable to deliver the verification report to the CLEC, due to incorrect address, it forwards the package to the account manager to get the correct address if possible.<sup>1067</sup> Verizon excludes such a verification report from the report period.

Liberty reviewed the application of Verizon’s business rules for this performance measure. These rules indicate that it is calculated using a manual process. Verizon pulls inputs from verification report records and enters them into an Excel spreadsheet where the numerator and denominator are calculated. Verizon enters the results into the NMP for reporting purposes. Verizon maintains a paper record for auditing purposes.<sup>1068</sup>

In its review and analysis Liberty sought to determine whether the process used for generating the verification reports and the reporting of the metric data were consistent with the metric definitions and requirements included in the Guidelines. Liberty’s analysis confirmed that there is an inconsistency in the definition of the GE-1 exclusions found in Verizon’s response to a data request<sup>1069</sup> and that found in the April 2002 Guidelines.

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<sup>1066</sup> Interview #37, April 2, 2003.

<sup>1067</sup> Interview #37, April 2, 2003.

<sup>1068</sup> Response to Data Request #22.

<sup>1069</sup> Response to Data Request #22.

Liberty reviewed the performance reports from October 2002 through February 2003 and noted that Verizon’s reported performance for the period was either 100 percent or there were no verification reports due. The number of CLEC access requests is typically less than 125. Liberty did not recalculate the metric GE 1-01.

## **F. GE-2, Poles, Ducts, Conduits, and Rights-of-Way**

### **1. Background**

The single metric reported here is GE-2-01, the percentage of access request responses transmitted on time. GE 2-01 is the number of access request responses issued within 45 days after Verizon’s receipt of a complete and accurate request for access divided by the total number of responses due in the reporting period. The data exclusions are requests for access in which the CLEC agreed to a response that exceeds the 45-day requirements and CLEC-caused delays in Verizon’s responses. The performance standard is 95 percent on time with Verizon reporting the measure on a statewide basis at the CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific levels.

This metric is included in Verizon’s IP. During the period there were no payments for failure to achieve the standard.

### **2. Analysis and Evaluation**

The formula for GE-2-01 metric is:

*GE-2-01- (number of access request responses due in the reporting period that are transmitted on or before the due date) /Total number of access request responses due in the reporting period)*

Liberty conducted interviews with Verizon subject matter experts and issued a number of data requests concerning GE-2. During the audit period, Verizon moved GE-2 from manual calculations status to the NMP. Liberty reviewed the documentation for the movement of GE 2-01 to the NMP for completeness and accuracy. The documentation detailed the various requirements and sources for the implementing the calculation and reporting of GE 3-01 in NMP.<sup>1070</sup>

Liberty reviewed the process used to develop the information and ultimately calculate the metric in the NMP. The process requires the CLEC to complete an application request and provide it by e-mail to Verizon. When a request is completed, Verizon transfers the information to the Bell Atlantic System (“BALT”) for processing. Verizon requires the request be error free for processing, otherwise Verizon returns it to the CLEC for correction. For the measurement period the BALT retains all requests. An analyst transfers the information from BALT to an Excel

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<sup>1070</sup> Response to Data Request #24.

spreadsheet containing the number of access requests and the number of requests transferred on time.<sup>1071</sup> The analyst enters the information into the NMP Web GUI for calculation and reporting by NMP of GE 2-01.<sup>1072</sup>

Liberty reviewed and analyzed the algorithms used to calculate GE 2-01 for accuracy and completeness. The numerator algorithm properly included requests during the measurement period that Verizon responded to within the required 45-day time period after receipt. Similarly the algorithm for the denominator included total access request responses due in the reporting period. Verizon applied exclusions manually prior to inputting data to NMP.<sup>1073</sup>

Liberty reviewed the metric performance during the period from November 2002 through February 2003. During this period, Verizon reported 100 percent in its performance for this measure. Liberty also observed that typically there was minimal activity. For example, during November 2002 through February 2003, the number of requests varied from 8 to 15 requests.<sup>1074</sup> Liberty did not recalculate this metric.

The documentation for the calculation and reporting of GE 2-01 in the NMP appears to be complete and accurate. The algorithms used to calculate the numerator and denominator of GE 2-01 properly include the number of access requests transferred on time in the numerator and the number of access requests due during the reporting period in the denominator. The number of CLEC access requests is *de minimus* and Verizon has met the performance standard in each performance period reviewed by Liberty.

## **G. GE-3, Bona Fide Request (BFR) Responses**

### **1. Background**

The single metric reported here is GE-3-01, the percent of Bona Fide Request Responses (BFR) transmitted on or before the due date. This metric is the percentage of BFR responses issued within the period specified in the CLEC-Verizon interconnection agreement or agreed to by the parties. There are no data exclusions other than the standard CLEC aggregate results do not include Verizon affiliate results. There is no performance standard, and Verizon reports the measure on a statewide basis for CLEC aggregate, CLEC specific, Verizon affiliate aggregate, and Verizon affiliate specific.

### **2. Analysis and Evaluation**

The formula for GE-3-01 metric is:

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<sup>1071</sup> Interview #37, April 2, 2003.

<sup>1072</sup> Response to Data Request #24.

<sup>1073</sup> Responses to Data Requests #24 and #25.

<sup>1074</sup> C2C Performance Reports for the period October 2002 through February 2003.

*GE-3-01- (number of BFR access request responses due in the reporting period that are transmitted on or before the due date) / Total number of BFR access request responses due in the reporting period)*

Liberty conducted interviews with Verizon subject matter experts and issued a number of data requests concerning GE 3-01. During the audit period, Verizon moved GE-3 from a manual calculations status to the NMP. Liberty reviewed the documentation for the movement to NMP for completeness and accuracy. The documentation detailed the various requirements and sources for the implementing the calculation and reporting of GE 3-01 in NMP.<sup>1075</sup>

Liberty reviewed and analyzed the algorithms used to calculate GE 3-01. The numerator algorithm properly included BFR applications during the measurement period that Verizon responded to within the required 30-day time after receipt. Similarly the denominator algorithm included total application responses due in the reporting period. Verizon applies exclusions manually prior to the inputting of data to NMP.<sup>1076</sup>

Liberty reviewed the processes used to develop the information and calculate the GE 3-01 metric to determine if the data generated are appropriate for calculating the metric. The process used to prepare the BFRs requires the CLEC to complete an application request and provide it by e-mail to its account manager at Verizon. Verizon requires the request be error free for processing, otherwise Verizon typically returns it to the CLEC for correction. When Verizon receives an error-free application from the CLEC, it then initiates the clock. Typically the response time in New Jersey is 30 days but it may be as agreed to by the CLEC and Verizon. The metric has an administrator that is responsible for compiling the data including populating or flagging whether Verizon completed the response on time. The administrator enters the information into the NMP Web GUI for calculation and reporting of GE 3-01.<sup>1077</sup>

Liberty reviewed the metric performance for the period from November 2002 through February 2003. During this period Verizon reported 100 percent in its performance for this measure. Liberty also observed that during much of the period there was no activity in GE 3-01. For example, during November 2002 through February 2003 there were no BFR applications.<sup>1078</sup> Liberty did not recalculate this metric.

The documentation for the calculation and reporting of GE 3-01 within the NMP appears to be complete and accurate. The algorithms used to calculate the numerator and denominator of GE 3-01 properly includes the BFRs due in the reporting period responded to on time in the numerator and the number of BFR responses due during the reporting period. The number of CLEC access requests is *de minimus* and Verizon has either met the performance standard or there was no activity during each performance report period between October 2002 and February 2003.

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<sup>1075</sup> Response to Data Request #24.

<sup>1076</sup> Interview #37 material provided by Verizon.

<sup>1077</sup> Responses to Data Requests #23 and #24.

<sup>1078</sup> C2C Performance Reports for the period October 2002 through February 2003.

## H. Findings and Recommendations

**Verizon’s OD-1 documentation<sup>1079</sup> contains an error in the percent calculation instructions.**

The instructions (at the bottom of page 5) state:

*To calculate the percent of calls answered > 30 seconds, subtract the number of calls answered > 30 seconds for the total calls (CLEC/Retail respectively) from the total calls; divide the difference by the total number of calls (CLEC/Retail respectively).*

The instructions should begin with: *To calculate the percent of calls answered in  $\leq 30$  seconds.* Liberty notes, however, that Verizon developed the OD-1 metric results properly for December 2002.

**Verizon is not adhering exactly to the *Report Dimensions* section of the Guidelines for OD-1.**

The *Report Dimensions* section of the Guidelines states that Verizon should report OD-1 for:

*Verizon/CLEC aggregate (combined data)*

However, Verizon actually reports one result for Verizon and one for all CLECs taken together. Liberty recommends that Verizon request an appropriate change to the *Report Dimensions* section of the Guidelines.

**The Observations section of the OD-1 performance report is unclear and incomplete.**

The performance report for each OD-1 sub-metric includes a result for Verizon, a result for CLECs, and a column headed *Observations*. Verizon has stated that the *Observations* in the performance report for these measures are the number of CLEC observations.<sup>1080</sup> Verizon should revise the existing header to indicate that it represents the number of CLEC observations. Furthermore, Verizon should also add a new column showing the number of Verizon observations.

**The *Exclusions* section of the Guidelines for OD-3 is misleading.**

The Guidelines state under *Exclusions* for OD-3-02:

*Metric OD-3-02: Directory Assistance database errors resulting from service order errors (order activity post completion discrepancies).*

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<sup>1079</sup> Response to Data Request #5.

<sup>1080</sup> Response to Data Request #53.

This wording seems to imply that service order errors are the same as order activity post completion discrepancies. However, as noted above, Verizon believes that order activity post completion discrepancies can result from three causes, only one of which is service order errors. Of those three, Verizon only excludes service order errors from OD-3-02.

Verizon’s documentation states that:<sup>1081</sup>

*A service order error is defined as an order or series of related orders that include a) format errors, b) data content errors, c) issuance methodology errors, or d) sequence errors that negatively impact normal prescribed update processing.*

Liberty recommends that the *Exclusions* section of the Guidelines explicitly state whether Verizon should exclude only service order errors from OD-3-02, or if Verizon should exclude all three types of order activity post completion discrepancies from it. If the latter is the case, then Verizon should modify its calculation procedures accordingly.

**Verizon is not sampling all the types of Directory Assistance data base updates listed in the Guidelines for OD-3.**

Verizon only samples insert (adds and modifications) Directory Assistance database update transactions,<sup>1082</sup> but this is not stated anywhere in the Guidelines. In fact, the Guidelines clearly imply that delete transactions are included as well. The *Definition* section of the Guidelines includes the following statement:

*An update is “completed without error” if the Directory Assistance database accurately reflects the new listing, **listing deletion** (emphasis added) or listing modification, submitted by the CLEC.*

Because Verizon has indicated that it cannot test the accuracy of “delete” data base updates,<sup>1083</sup> Liberty recommends that Verizon request a change to the wording of the Guidelines to state that only “add” updates are included in the metric.

**Verizon is not adhering exactly to the description of the denominator in the Guidelines for OD-3.**

The denominator of OD-3 in the Guidelines is “*Total number of updates completed*,” but that is not how Verizon is calculating the metric result. Verizon’s update sample is taken from the set of updates submitted, and every sampled update is used in the OD-3 calculation. Because some submitted updates do not complete, results are actually being reported on “updates submitted,” not on “updates completed.”

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<sup>1081</sup> Response to Data Request #5.

<sup>1082</sup> Response to Data Request #98.

<sup>1083</sup> Response to Data Request #81.



Furthermore, Verizon’s OD-3 documentation<sup>1084</sup> clearly states that the denominator of OD-3-02 will include the total number of updates completed **minus** those with service order errors.

Liberty recommends that Verizon request a change to the wording of the Guidelines to state that it reports results on “updates submitted” rather than on “updates completed.” In addition, the Guidelines should describe the denominator of OD-3-02 as “total number of updates submitted less those with service order errors.”

**The OD-3 performance results sometimes will not represent the entire month.**

Verizon chooses its OD-3 sample from the daily files of update listings submitted. Each day, three files are created, one each for Verizon updates, CLEC (including Verizon affiliates) updates, and reseller updates. The program then chooses a random set of updates from each of the three files. Verizon’s program determines the number of updates it chooses by the size of the file; the more transactions there are in a file, the more updates it will choose. When enough days have passed so that it selected the required number of updates for the sample (*e.g.*, 100 for resellers), then it chooses no more updates. This means that the earlier days of the month are always represented, but some of the latter days in the month may not be included in the sample at all. For example, Verizon satisfied the sample size for December 2002 on December 17, so the updates done during the period December 18 through December 31 were not represented at all in the sample or in the December 2002 OD-3 performance results.

Liberty recommends that Verizon create three monthly files, one for Verizon updates, one for CLEC updates and one for reseller updates, and then choose its samples randomly from each of those three files. In this way, all days of the month will be equally represented.

Also, readers should bear in mind that many of the reported OD-3 performance results (*e.g.*, for a specific CLEC) are very unlikely to have enough updates included to guarantee statistical validity of the result.

**Verizon’s process for calculating GE-1 excludes invalid addresses and refused reports, which is inconsistent with the Guidelines.<sup>1085</sup>**

Verizon processes are reasonable and provide ample opportunity for them to meet the report verification deadline for all CLECs. Though incorrect addresses and CLEC refusals to accept delivery appear to be reasonable and Verizon should exclude them from the metric, the exclusion is not listed in the Guidelines. Verizon should request approval of a change to the Guidelines for GE 1-01 metric for an exclusion related to invalid addresses and CLEC refused reports.

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<sup>1084</sup> Response to Data Request #5.

<sup>1085</sup> Interview #37, April 2, 2003.